JULY 23, 1951

NEWS ISSUE

Electrical World

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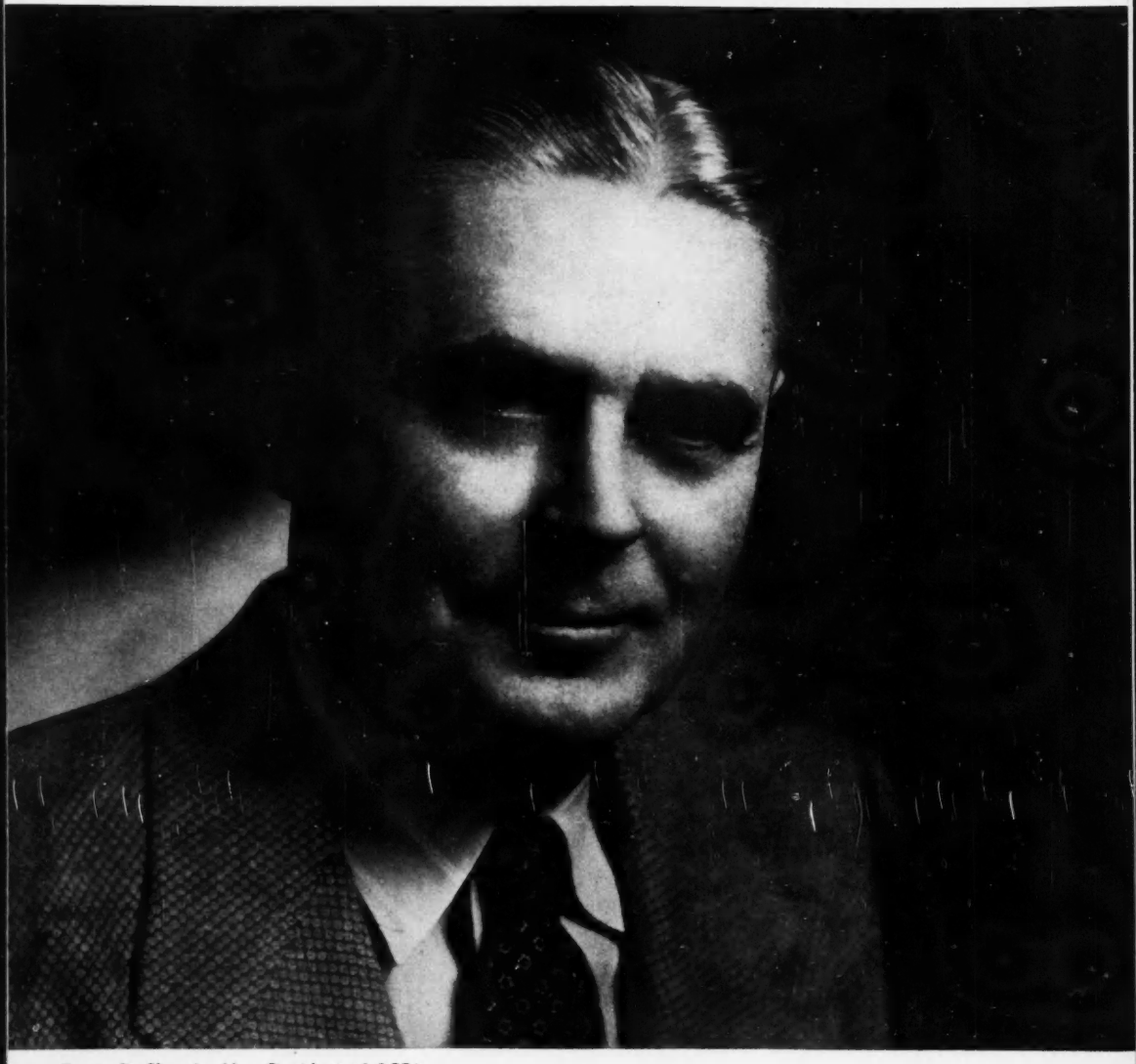
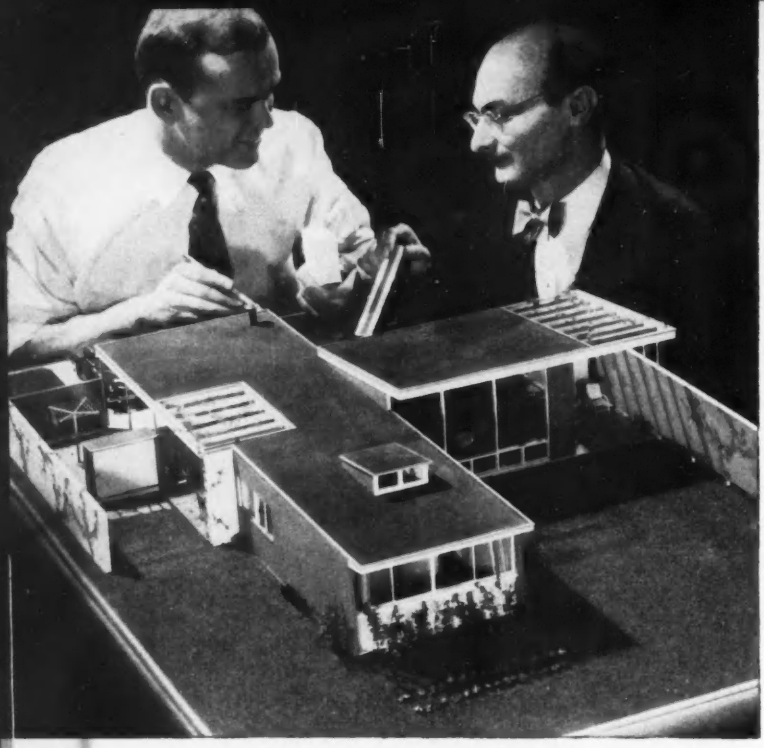


Emery D. Sherwin, New President of PCEA

LA's Three Steps to Power.....Page 16

Peace Without a Letdown?.....Page 30



New homes like this, designed to obtain maximum benefits from the heat pump, will probably make up the first big market. Here, a G-E climate engineer explains the installation and operation of a heat pump to architect Seymour R. Joseph.

Is the Heat Pump ready to go?

Here are findings that can double your residential load--sooner than you think!

Year-round air conditioning—heating in winter and cooling in summer, from a single electrically operated heat pump unit—is now a practical possibility for homes over a great part of the nation.

Pilot installations made in widely separated regions of the country have shown encouraging records of operation. In moderate temperature zones, for example, with a rate of 1½ cents per kw-hr, the 3-hp heat pump should average only $135 a year for both heating and cooling a six room house. That's reducing operating costs to attractive levels.

Production of standardized, packaged units is already under way at General Electric. Depending on the availability of man-power and materials, the next important step of marketing should soon be possible.

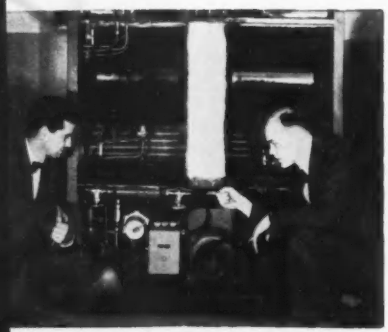
Is the heat pump ready to go? Basically, yes. Unquestionably, some design and application problems have still to be solved. But the electrical industry will take them in its stride. Ten, or even five years from now, the heat pump may be the next great residential load builder. With installations in only ten per cent of American homes, present domestic load could be doubled. The important thing is to be ready.

The G-E Air Conditioning Department at Bloomfield, N. J., will welcome inquiries. *General Electric Company, Schenectady 5, N. Y.*

MORE POWER TO AMERICA

GENERAL ELECTRIC

301-165



Heat pump controls, compressor and other parts are essentially those used in refrigeration equipment. Examining a 3-hp pilot model are G-E engineers F. R. Ellenberger and J. Martin.

"Consistently good performance, summer and winter," is the way J. W. Belanger, General Manager of G.E.'s Large Apparatus Div., describes the heat pump installation in his home.

Estimates indicate that the average heat pump load will equal that of seven to ten ranges. This attractive Providence, R.I., home is one of many pilot installations throughout the country.

The Electrical Week

INDUSTRY MOBILIZATION (pages 4 and 5)—NPA wants some power systems to explain the irregularity of delivery schedules for power plant equipment . . . Robert Hatfield is back in Washington—this time as vice chairman of the Munitions Board . . . Some phone numbers of Engine and Turbine Division officials have been changed . . . DMA reports on the metals situation at the end of 1953. Copper, tungsten, and cobalt will be short . . . In placing orders for Class A products taking several months to fabricate, utilities can allot controlled materials to the fabricator in the quarter needed . . . Robert Brandt, New England Power Co, heads the newly formed Coordination and Planning Branch of the Power Supply Division of the Defense Electric Power Administration.

WASHINGTON—William C. Wise named deputy REA administrator succeeding George W. Haggard, killed in Colorado plane crash June 30 (p 6) . . . Interior Department appeals Vepco's Roanoke Rapids license (p 6).

ELSEWHERE—System damage was not too great as flood swept eastern Kansas last week. Largest plant put out of operation was 40,000-kva steam station of Kansas Gas & Electric Co in Neosho (p 11) . . . British Electricity Authority battles Labor government for additional capacity (p 12) . . . Old Dominion co-ops give up idea of making own power, sign contracts to take it from Vepco (p 14) . . . Outlook looks good for peace without a business letdown (p 30).

• • •

New power plants now under construction will be so efficient that only 0.66 lb of coal will be required to produce 1 kwhr of electricity. The Kearny (N. J.) Plant of Public Service Electric & Gas Co (two 145,000-kw units) and the Cromby Plant of Philadelphia Electric Co (a 200,000-kw unit) will have this efficiency.

The construction race between Electric Energy Inc's Joppa Plant and TVA's Shawnee Plant got back on the track last week as striking unions at both jobs agreed to end their jurisdictional disputes and return to work. It looked as though AEC's Paducah plant might get some power from EEI and TVA; provided, of course, that the recurring labor disputes at the atomic installation can be settled.

Members of the House Public Works Committee voted 14 to 13 last week not to shelve resolutions approving the St. Lawrence Waterway Project.

The Interior Department has unrolled plans for its $200-million Central Utah Reclamation Project. At the several multipurpose dams proposed for the initial phase of the project some 250,000 kw of generating capacity is to be installed.

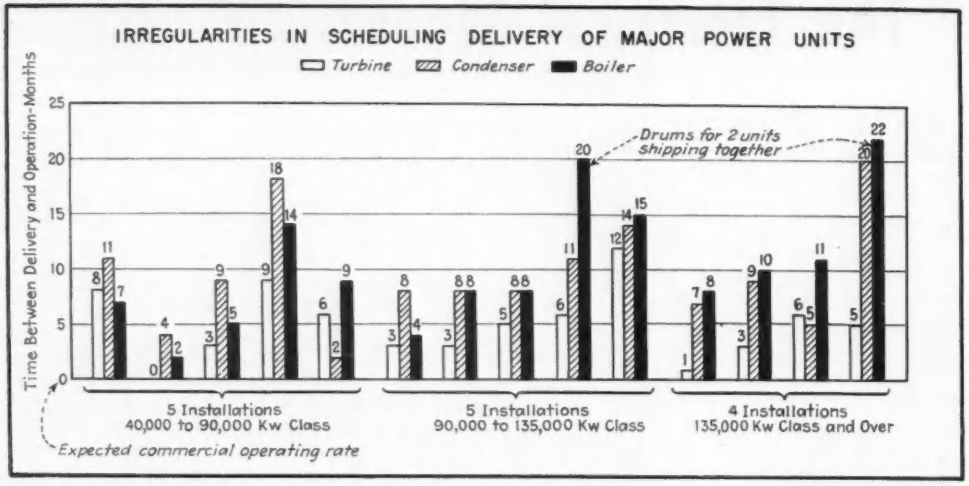
General Cable Corp decided it had enough of United Electrical Workers' slowdown-stopwork tactics and closed down its main plant in Rome, N. Y., and two others in California. The company, which is negotiating wage agreements with the union, said plants would stay closed until employees "return to work and work at the regular pace they have maintained in the past."

Primary aluminum production in the United States in May was 135,440,954 lb. This was little change from the April total of 135,402,337 lb.

Basic materials projects recommended for quick amortization should produce upward of 15.5 million tons of iron ore, 139,000 tons of copper, 90,000 tons of zinc, and 35,000 tons of lead a year, the Defense Minerals Administration has announced.

Notes From The News

Aluminum Co of America will have to be satisfied with an 80% aluminum building for its home offices. The company had planned an "all-aluminum" building but has been advised by the government it can use its own product to finish only four-fifths of the structure . . . A pilot and his passenger were killed recently when the monoplane they were riding in struck a 11-kv power line, exploded, and plunged into a field at Baldwin Park, Cal . . . Report of a "fresh grave" near Puget Sound Power & Light Co line running outside a cemetery in the vicinity of Renton, Wash., turned out to be a dud. Police investigating the matter discovered that a number of such "graves" along the line were piles of burned slashings covered over with earth by the utility's brush crews . . . Gamblers in Singapore have taken advantage of the frequent power failures in the British Crown Colony. They are making book on the duration of an outage. Winner takes the whole "kitty." . . . Sitting down on the job saved an electrical worker's life recently. Employed in a Joliet, Ill., arsenal power substation, he accidentally touched a 6.9-kv line with his left foot. The current passed up his left leg but because of his position was grounded.


IRREGULARITIES IN SCHEDULING DELIVERY OF MAJOR POWER UNITS
Turbine
Condenser
Boiler
Time Between Delivery and Operation-Months
Drums for 2 units shipping together
5 Installations 40,000 to 90,000 Kw Class
5 Installations 90,000 to 135,000 Kw Class
4 Installations 135,000 Kw Class and Over
Expected commercial operating rate

Muddled Equipment Delivery Dates Make NPA Officials Ask Questions

Officials of some electric utility systems will have to do some explaining. National Production Authority officials want answers to questions such as these: Why do you need a condenser ahead of the boiler? Why should the turbine be set in place before the boiler?

Answering them to the satisfaction of NPA is going to be difficult—even though it is conceded by NPA officials that in a few cases there may be extentuating circumstances for the irregular ordering by some systems (See chart).

NPA's goal is to see that the industry gets the most out of its metals allocation. This won't be possible if the widespread discrepancy in the delivery schedules continues. Major component parts of capacity additions scheduled to come into production by the end of 1953 are affected. Both public and private power systems have been guilty of the irregular ordering. In several cases the irregularities are of sufficient magnitude to make a considerable difference in the metals needs for the next few quarters. Lack of metals is the only threat to the power expansion program.

Where shipping schedules of major items could be deferred without changing the commercial operating date, it would give the metals allocating agencies a better chance to meet the needs of plants on tight schedules.

This would enable the control agencies to get over the hump of the next two or three quarters. After that steel and aluminum capacity is slated to be increased enough to meet better the expected demand for these metals.

Engineers will disagree as to required lead times for various pieces of major equipment. There are exceptions to the normal schedules shown in the accompanying table. But NPA officials believe that these are the goals at which the industry must shoot. If the power systems won't aim, the control agencies will do a little shooting of their own.

When Equipment Is Needed (40-Hour Construction Week)

Capacity of unit in megawatts	Delivery needed in months ahead of operating date		
	Boilers	Condensers	Turbines
135 up	14-15	11-12	8
100 to 135	12-13	10	7
60 to 100	10-12	9	6
40 to 60	8-10	8	5

With a 50-hour week it is estimated that the turbine figures could be reduced by 25%. Beyond a 50-hour week the direct proportion of reduced installation time would not result. For boiler erection a 50-hour week could cut above figures by 15%.

Hatfield Joins Munitions Board as Vice Chairman

Robert M. Hatfield, former director of National Production Authority's Power Equipment Division, moved into a top spot on the Munitions Board, July 10.

As vice chairman for government agencies, Hatfield will act as liaison between the board and the civilian defense agencies such as the Defense Production Administration, NPA, Office of Economic Stabilization, and others. He will also act as executive assistant to the Munitions Board chairman.

Hatfield is general manager of the western division of Combustion Engineering-Superheater, Inc, and is known for his annual output contest.

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ETD Phones Changed

Phone extensions for several officials of the National Production Authority's Engine and Turbine Division have been changed from those listed in "Electrical World" May 21, Page 108. Director Charles F. Kells and Deputy Director E. J. Hand are now on Extension 4202. Other new extensions include: Steam Turbines, X-3936; Condensers, X-4706; Program and Statistics, X-3945; Coordination, X-5077; and Heat Exchangers and Water Treatment, X-3945. All extensions are on STerling 5200, Washington, D. C.

DMA Gives 1953 Metals Picture; Copper, Tungsten, and Cobalt Short

If the metal isn't copper, tungsten, cobalt, or titanium, it should be in ample supply by the end of 1953. This is the expectation of the Defense Minerals Administration, which has charted a vast expansion program which covers all metals in short supply.

Expansion rests now on some 140 projects approved for quick tax amortization and on 48 minerals exploration projects receiving government assistance. There will be additional projects up for approval during the next few months.

Here is the picture on the metals that will still be short by the end of 1953:

Titanium—Only 15% of the demand can be supplied if the price stays at $5 a lb for sponge metal. If the new process developed for the Navy actually reduces the cost to anywhere near $1 a lb, only a trifle of the demand can be supplied. But the ore is plentiful here and in Canada. New processing plants will provide relief later.

Copper—DMA has approved projects to turn out 139,000 additional tons of copper. But at the best domestic output will rise but 5%. Combined with imports supplies still will be 15% under demand.

Tungsten—Domestic production in May soared 89% over May 1950. The catch is production then was extremely low. Most tungsten comes from abroad. Nowhere in the world will there be enough of the metal to supply the demand created by mobilization.

Cobalt—This is even scarcer than tungsten. At present it appears that the only relief will come from designing it out of products.

Metals pictures which are bright are these:

Iron—DMA expects iron ore supplies to be 6% less, even figuring on 10 million tons of imports, and some production from taconite. But the fine record of the steel companies in finding ore makes DMA officials feel that there will be no cutbacks in steel.

Manganese—Sustained imports will keep the supply plentiful. It is possible that the process for extracting the metal from slag will be in use before the end of 1953.

Nickel and Molybdenum—Production of both is expected to reach the 1951 level of demand before the end of 1953. DMA has approved projects which would increase molybdenum 8 million lb per year. International Nickel has already upped output 1 million lb per month. Further nickel expansion is in the works. These two metals are being used increasingly as substitutes; so even though they may not be in easy supply, they will be plentiful by today's standards.

Zinc—Projects will increase output 90,000 tons a year. By 1953 supply will equal 1951 demand.

Lead—Expansion already approved will provide 35,000 tons a year. Demand should be supplied within 1%.

Aluminum—No trouble foreseen. Magnesium production will be of help.

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New Allotment Orders

In placing orders for Class A products taking several months to fabricate, utilities may allot the controlled materials to the fabricator during the quarter the metal is needed. Where this is done, the purchase order should be accompanied by a separate form carrying the allotment of controlled materials with the period of allotment clearly indicated. The purchase order must carry the symbol DO-H-3 or DO-H-4.

Brandt Heads Depa's New Planning Branch

Robert Brandt of the New England Power Co, Boston, has been named to head the newly formed Coordination and Planning Branch of the Power Supply Division of the Defense Electric Power Administration. His responsibilities will include what was formerly the Regional Coordination Branch.

ROBERT BRANDT

He will supervise and direct coordination of operations of the power supply systems in the various regions of the country. This work will include keeping in touch with the regional coordinating committees and power supply system organizations.

Before coming to Depa Brandt was an engineer in the operating department of New England Power Co. There his work covered a variety of operating problems, with emphasis on planning and interconnection.

He is chairman of the System Engineering Committee of the American Institute of Electrical Engineers and an area representative of the Power Survey Committee of the Edison Electric Institute. This work has familiarized him with power supply problems throughout the nation and with operating problems of utilities.

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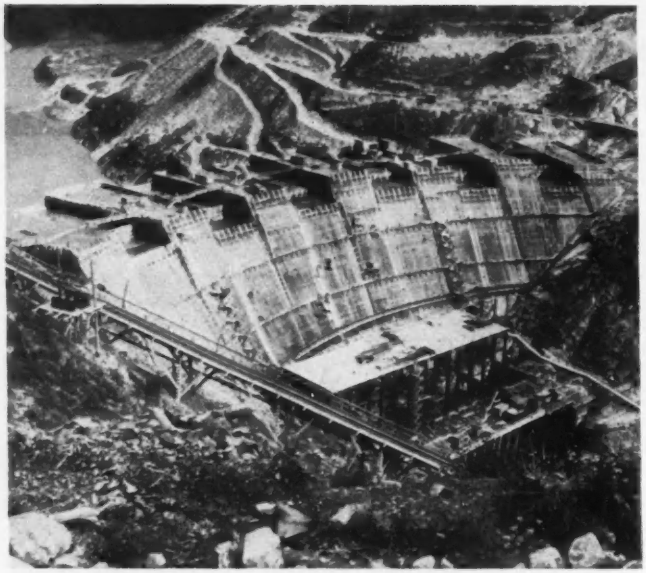

FOURTH BIRTHDAY of Hungry Horse Dam, Reclamation project on south fork of Flathead River in Montana, was marked this month with the job 60% completed. When it is finished, dam will be 564 ft high and 2,115 ft long, making it the fourth largest concrete dam in the world. It will have four 105,000-kw units

Tacoma Board Upholds C. A. Erdahl on Contract

The Tacoma, Wash., Municipal Board of Contracts and Awards has upheld C. A. Erdahl, utilities commissioner, in his method of awarding a contract for excavating in preparation for a new City Light warehouse.

Mayor John Anderson, in his capacity as chairman of the board, last month indicated City Light had been "out of line" in obtaining about $14,000 worth of excavation work without calling for bids. Instead, the lighting division had paid for the job by means of individual vouchers for amounts less than the $1,500 permitted by law without bid calls.

Corporation Counsel Clarence M. Boyle, asked for an opinion by Erdahl, determined that methods used by the light division were legal, although he recommended that in the future normal means be used.

Five contractors submitted estimates of the cost of renting equipment for the job, Boyle pointed out. The rental of equipment does not require a formal bid call.

Lemley moved that in light of the city attorney's opinion that the work was done in a legal manner, the case should be considered closed. Craig seconded the motion and the board voted unanimously in favor of it.

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Interior Appeals Vepco's Roanoke Rapids License

Construction of a hydroelectric project at Roanoke Rapids, N. C., would be economically feasible only if undertaken by the federal government. This is one of the contentions of the Interior Department in its court fight to invalidate a Federal Power Commission license granted to the Virginia Electric & Power Co.

In its brief submitted to the Circuit Court of Appeals at Richmond, Interior argued that the private company was depending on benefits from the federally owned Buggs Island Project upstream to make its own Roanoke project profitable. Therefore FPC erred when it held the utility's project to be economically feasible.

If the federal government built the project instead, Interior contended, it would have a cost-to-benefits ratio of 2.60.

Wise New REA Deputy; Sheppard Made Assistant

William C. Wise, assistant administrator of the Rural Electrification Administration, has been named deputy administrator. He succeeds George W. Haggard who was killed, along with five other REA officials, in an airplane accident in Colorado June 30 (EW, July 9, p 13).

S. Riggs Shepperd, a Texas co-op manager since 1941, is the new assistant administrator.

Wise, born in Pennsylvania, was made assistant administrator in 1949 after 14 years with REA. He had previously served as attorney, assistant to the general counsel, and chief of the electrification operations division in the solicitor's office.

A native of Colorado City, Texas, Shepperd is a graduate of Hardin-Simmons University and did graduate work at Texas Technological College. Before becoming manager of the Taylor Electric Cooperative, Merkel, Texas, he helped organize the Cap Rock Electric Cooperative at Stanton. From 1932 to 1939 he served as superintendent of schools of Martin County.

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Southeast Power Group Formed by REA Co-ops

Representatives of nearly 200 rural electric co-operatives in eight states organized the Southeast Power Committee at a recent meeting in Columbia, S. C. The 53 delegates came from Georgia, South Carolina, North Carolina, Florida, Alabama, Kentucky, Mississippi, and Virginia.

Next month another meeting will be held in Columbia to set up a permanent organization and plan activities. Five representatives from each state are expected to attend.

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Construction Plans Speeded

Union Electric Co, Missouri, is speeding construction of the $20-million second section of its Meramec Plant in South St. Louis County. This section will be started in the summer and is expected to be in operation by November, 1953. The first section is slated for completion by December, 1952. The station will have a total capacity of 260,000 kw.

Announcing

THE NEW 50 AMP

ALLIS-CHALMERS 5/8% STEP VOLTAGE REGULATOR

Improves Service —Cuts Complaints

Provides Full 20% Range of Regulation

± 1 Volt Band

Raises Revenue by Increasing KWH Consumption

Rating is 38.1 KVA, 7620 volts, 50 Amp.

NOW YOU CAN take advantage of the features of the JFR regulator in a new rating. The new 50 ampere regulator gives you all the quality features of Allis-Chalmers ⅝% step regulators with a low price tag that makes regulation more economical than ever before. Regardless of load changes or voltage difficulties, with this new regulator you can keep voltage constant at any given point on a line.

The new 50 amp JFR regulator is fully automatic. It regulates line voltage through a range of 20% in 32 small ⅝% steps, and holds ± 1 volt band. Rating is 38.1 kva, 7620 volts, 50 amps for operation at 7960, 7200, 6900, 5000, 4330 and 2500 volts.

Simple Adjustment

Maintenance and adjustment are easy. The unit type control is grouped on a single control panel where it is readily accessible for adjustment or inspection. You need to make only two knob settings. Voltage level and voltage band can be set in less than 60 seconds.

Jump-Proof Mounting Brackets

The jump-proof mounting brackets on this new 50 amp JFR regulator are the same as used on distribution transformers. A heavy driving motor operates under oil for tap changing. There are no commutators, slip rings, brushes, no centrifugal switch.

Today, consult your Allis-Chalmers sales office for complete details on how the new 50 amp JFR regulator can serve you. Or write: Allis-Chalmers, Milwaukee 1, Wisconsin. A-3392

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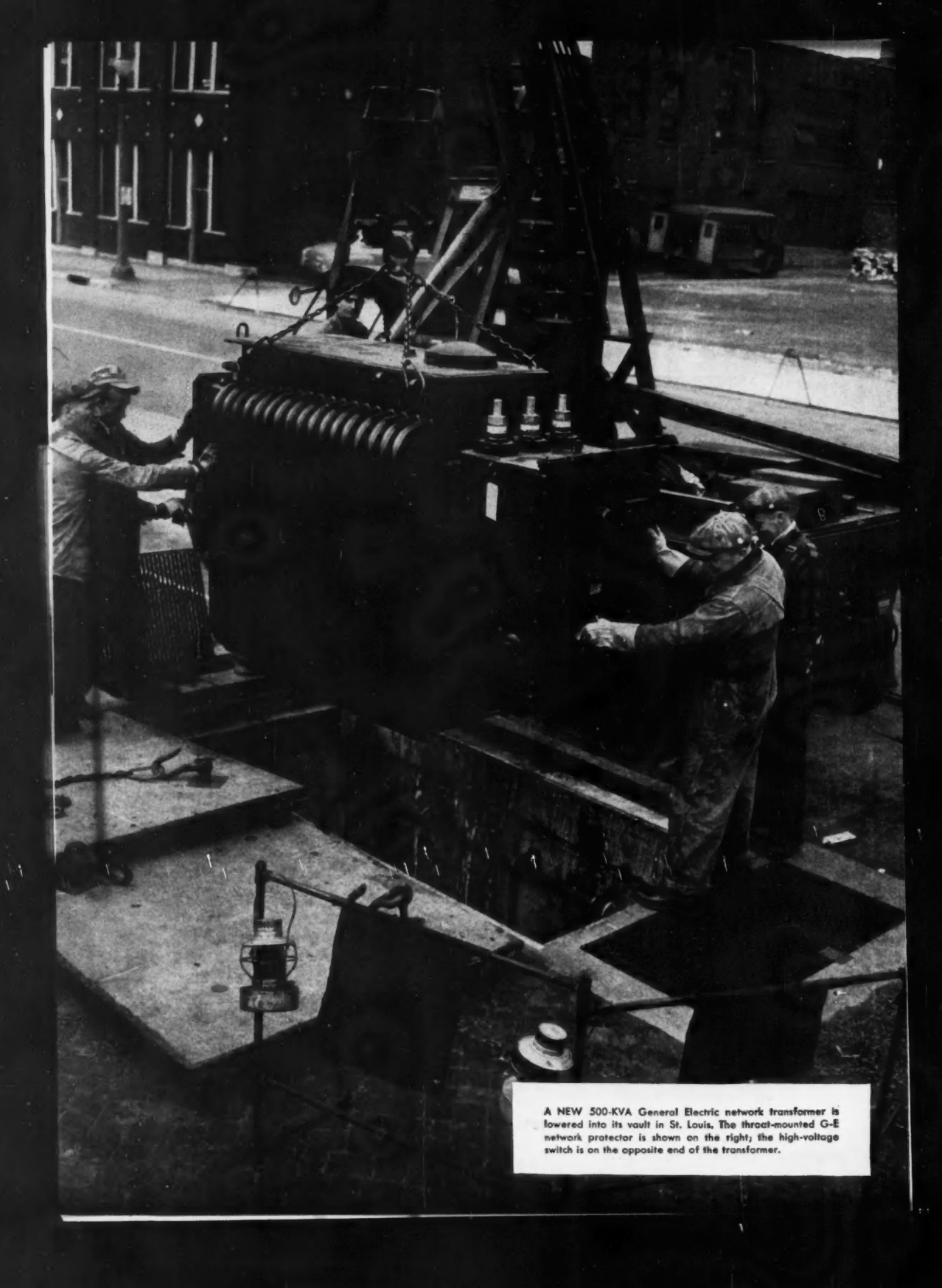
Originators of ⅝% Step Regulation



A NEW 500-KVA General Electric network transformer is lowered into its vault in St. Louis. The throat-mounted G-E network protector is shown on the right; the high-voltage switch is on the opposite end of the transformer.

More Capacity for St. Louis' Network System

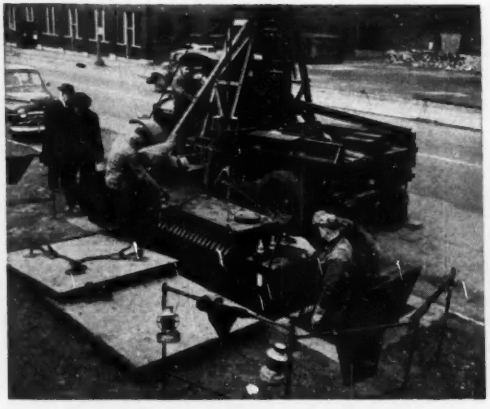
Installation of this G-E Network Unit demonstrates once more how a network eliminates headaches connected with load growth

It's an old story to users of networks, but still mighty impressive—the ease with which you can meet increased loads, once you have gone to a network system.

The place is St. Louis. The utility, the Union Electric Company. Load in the area around Clark Avenue and 15th Street had grown to the point where an additional transformer was needed.

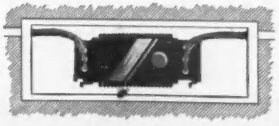
With a network, this addition was easy! A vault was constructed. A high-voltage feeder extended two blocks, from Market and 14th. The secondary cable brought into the vault. Then, with everything ready, and at the convenience of the construction crew, a new 500-kva transformer was installed—and connected during the daytime, with no interruption of service. With a total of three different high-voltage feeders serving the area, the one involved in this installation was killed while the new network unit was being connected. When all was set, the feeder was re-energized and the new transformer picked up its share of the network load.

With a network, service connections as well as low voltage grid connections are provided initially thus eliminating any need for rearrangement or reinforcement when a new transformer is added. In every respect, each added transformer represents an orderly step in system growth that was all automatically provided for when the network was first installed. *General Electric Company, Schenectady 5, New York*

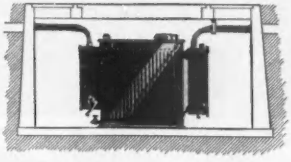


ALMOST IN PLACE! By using standard G-E network units, Union Electric Co. has kept vault construction costs to a minimum. Complete servicing of the transformer, switch, and protector can be done from the two ends—so that the vault can be made narrow enough to fit between sidewalk and curb.

Narrow, shallow vaults when you use G-E Standardized Network Equipment



With manhole openings at both ends, vault need be only 14′ long, 4½′ wide for a 500-kva transformer.



A vault depth of 7′ below roof slab will provide sufficient room for maintenance and inspection.

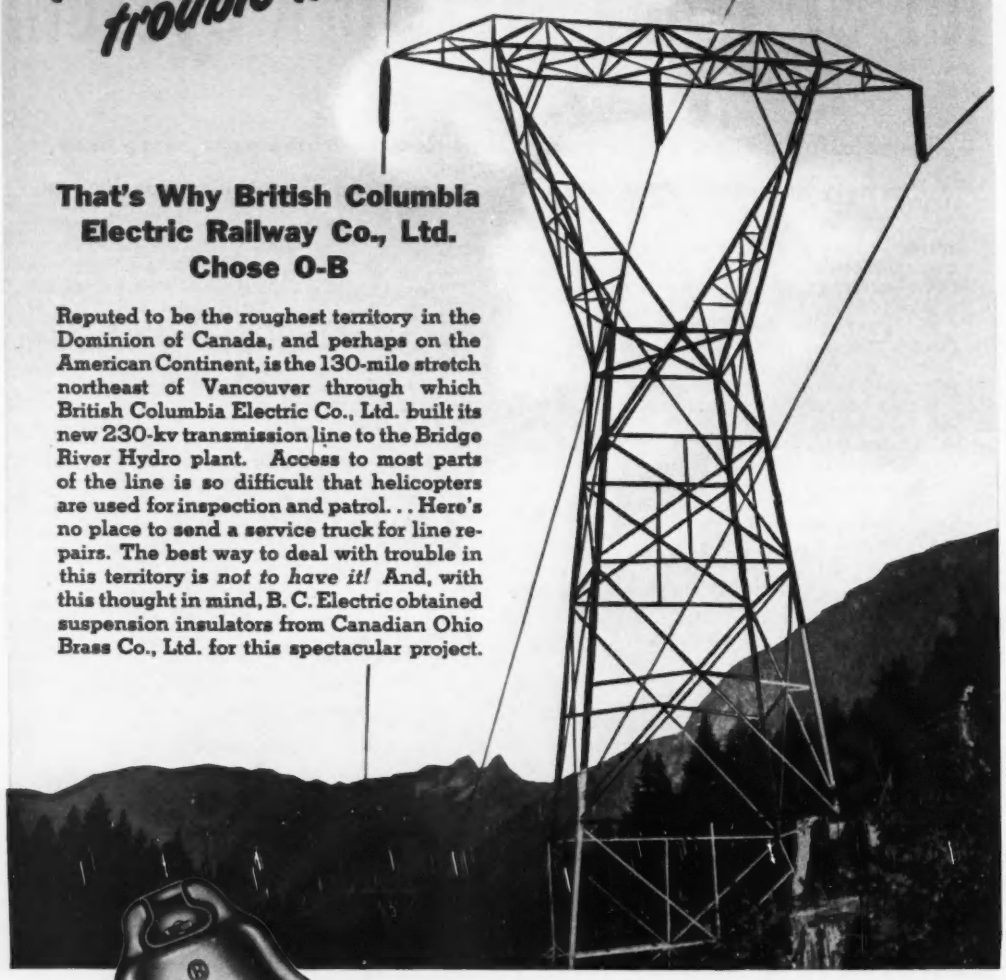
GENERAL ELECTRIC

402-109

The best way to deal with insulator trouble here is NOT TO HAVE IT!

That's Why British Columbia Electric Railway Co., Ltd. Chose O-B

Reputed to be the roughest territory in the Dominion of Canada, and perhaps on the American Continent, is the 130-mile stretch northeast of Vancouver through which British Columbia Electric Co., Ltd. built its new 230-kv transmission line to the Bridge River Hydro plant. Access to most parts of the line is so difficult that helicopters are used for inspection and patrol. . . Here's no place to send a service truck for line repairs. The best way to deal with trouble in this territory is *not to have it!* And, with this thought in mind, B. C. Electric obtained suspension insulators from Canadian Ohio Brass Co., Ltd. for this spectacular project.



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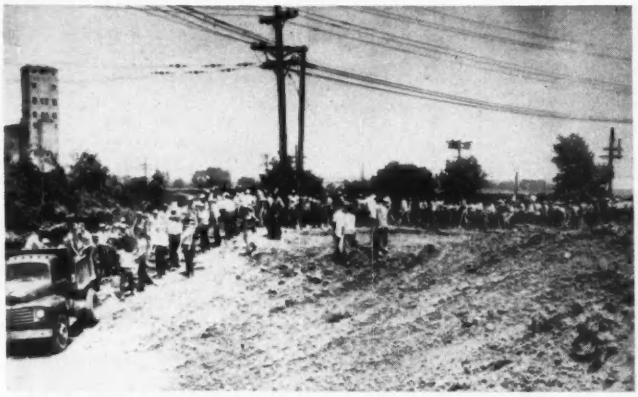
Ohio Brass

MANSFIELD • OHIO



FLOOD WATERS of Missouri River were kept from reaching municipal plant serving 40,000 customers in Kansas City, Kan., by this volunteer sandbag brigade. Here the line passes bags up to main dike near the plant. Men repeatedly threw themselves into breach to hold weak points till the dam could be reinforced

Damage to Systems Slight Despite High Crests in East Kansas Floods

Damage to power systems was relatively light and interruptions moderate as flood waters of the Kansas (Kaw) River rose in eastern Kansas last week.

Largest plant lost was Kansas Gas & Electric Co's Neosho steam station, 40,000 kva. The plant had water eight feet above the turbine room floor after the flood at this point reached ten ft above the previous high water mark.

About 2,000 volunteer workers saved the Kansas City, Kan., municipal plant in the north side of the Fairfax area. A sandbag brigade carted bags to weak points in the main dike near the plant. Men repeatedly threw themselves into the breach to hold the waters until the dike could be reinforced. Volunteers worked around the clock, aided by bulldozers and cranes, to keep water from entering the plant. A second dike was started back of the first and then a third back of the second. To strengthen the earthworks, coal from the company's supply yard was hauled to the temporary dikes and dumped all along the surface. The dikes held, and the plant remained in operation.

Most of the industrial area of the municipal system was under water and many residential areas were covered.

Across the river in hard-hit Kansas City, Mo., power plants of Kansas City Power & Light Co were not affected. Many industrial customers were lost, however, when half the industrial area, on low ground along the Kansas and Missouri Rivers, was flooded.

Some industrial plants on higher ground were deprived of power when lines reaching them from lower-lying areas went out.

The utility reported system load dropped to 24,000 kw last Tuesday as the city began to dig itself out of the mud. This compared with 326,000 kw a week before the flood.

Two 33-kv lines serving 7,000 customers in the Kansas City, Kan., suburban area were out, and there were short interruptions on other 33-kv lines into Eastern Kansas. Loss of a bridge span in Wyandotte County disrupted KCP&L service to a rural area. Within a day, utility workmen in a boat stretched a new line across the river.

In Topeka, Kansas Power & Light Co was able to maintain power in the main part of the city, but service was out in the fringe areas.

Here another major battle was made to keep a power plant from being flooded. A river dike broke near the Tecumseh plant east of the city, spilling two feet of water across the area. Thousands of military and civilian volunteers threw up an embankment completely around the plant to keep power for the capital city of 80,000 from being knocked out.

Several small communities on the system had no power. They included Alma, Neosho Rapids, Paxico, Quivira, Eudora, Linwood, and Forest Lake. High water caused the river to change its channel in a number of places and transmission lines at these points were knocked out.

Municipal Plant Out

Municipal plants in Chanute, Marion, and Iola, Kan., were flooded and out of service.

Only two small towns on the KG&E system, Oswego and McCune, were without power. They are served by a 12-kv line which the utility planned to restore as soon as water receded.

Seven feet of water was reported in the 1,800-kw Humboldt, Kan., plant of Kansas Utilities Co. The plant was out.

South of Kansas City, floods along the Neosho and Marais des Cygnes Rivers knocked out power plants at Pittsburg and Ottawa, Kan. for brief periods.

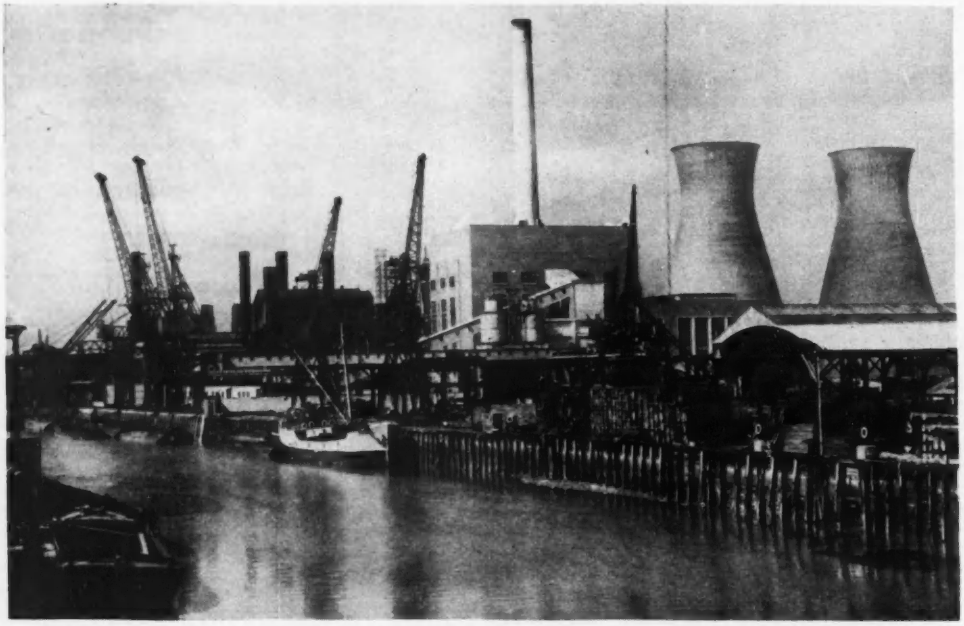
General Electric Co mobilized its service shops in a ten-state area to aid utilities restore vital services to their communities. Field and service shop engineers were rushed to Kansas City.

Manufacturers Step In

A GE expediter is in Washington to help get priorities for copper wire and other materials needed in this phase of the rehabilitation work.

Three large power transformers intended for the Nashville (Tenn.) Power Board were diverted with consent of the board to the Kansas Power & Light Co, Topeka, where similar equipment had been flooded. The Pittsfield plant also shipped 20 50-kva distribution transformers to Kansas City as replacements for similar damaged equipment.

Westinghouse Electric Corp also rushed repairmen and experts to Kansas City, Mo., where its jet engine plant was converted into an emergency repair shop. Large ovens are available for drying out damaged equipment. All manufacturing divisions have sent inventory lists there so that ordering of new equipment can be speeded. All such orders will be given priority.



WEST HAM 'B' STATION of British Electricity Authority, which went on the line ten days ago with two 30,000-kw generators. Although seven others will be commissioned in Britain this year, power situation there is dark and is getting darker

BEA Battles for Additional Capacity

Authority's Feud with the Labor Government Breaks into the Open as Gap Between Power Supply and Demand Steadily Becomes Wider

A battle between the nationalized British Electricity Authority and planners in the Labor government broke into the open this summer. At the root of the matter is a bad omen for western rearmament: The yawning gap between supply and demand for electricity in Britain is getting wider.

Faced with the task of supplying British industry—which takes more than 50% of BEA's output—with more power for rearmament, the high command of the electricity authority is making strong public pleas for more money, more materials, and higher priorities.

Last year BEA installed 965,000 kw of new capacity. That increased Britain's total capacity to 14.6 million kw—still 15% below demand at peak load periods.

This year's minimum target is an additional million kw. But BEA officials are hinting darkly that even that target won't be met—that the figure may drop below last year's.

Meanwhile demand goes steadily up. BEA is turning away more and more new industrial customers applying for power from its lines. And the unfortunate British householder, who contributes 35% to BEA's winter peak load, is being pressed to the wall.

Lord Citrine, BEA's plain-speaking chairman, predicted in June that British housewives might face another ten years of unannounced power cutoffs. During 1950, Lord Citrine confessed, load was shed on 267 occasions—twice the number of times as in 1949.

It was only on the first of this month that the government began taking steps to meet what could be a disastrous power shortage. Then, Chancellor of the Exchequer Hugh Gaitskell promised that capital investment in the electrical supply industry "will be substantially higher this year than last." (Last year BEA spent about $355 million.)

At the same time Gaitskell announced a domestic allocation scheme for steel and other scarce materials. The plan closely resembles the United States' defense order system. By year's end, Gaitskell feels BEA should be getting its fair share of materials—particularly steel—which are currently causing bottlenecks throughout the whole power construction program.

These assurances haven't done much to allay fears in BEA. The authority plans to bring eight new plants into partial operation this year (see table). But work on many of these is being held up for lack of building steel. Just before Gaitskell made his announcements, Lord Citrine accused the government of "diverting" steel earmarked for BEA projects "to meet other needs."

"Unless something is done immediately to give BEA requirements top priority," he warned, "the plant commissioning program cannot possibly be met."

The fact is the government has already scaled BEA's building program down. The authority aimed to build up its annual rate of plant commissionings to 1.8 million kw by 1956. The government, over loud protests from the authority, has rolled that back to 1.5 million kw. And, barring new developments in gas turbine generation or the adoption of new fuels, even that figure may be too high.

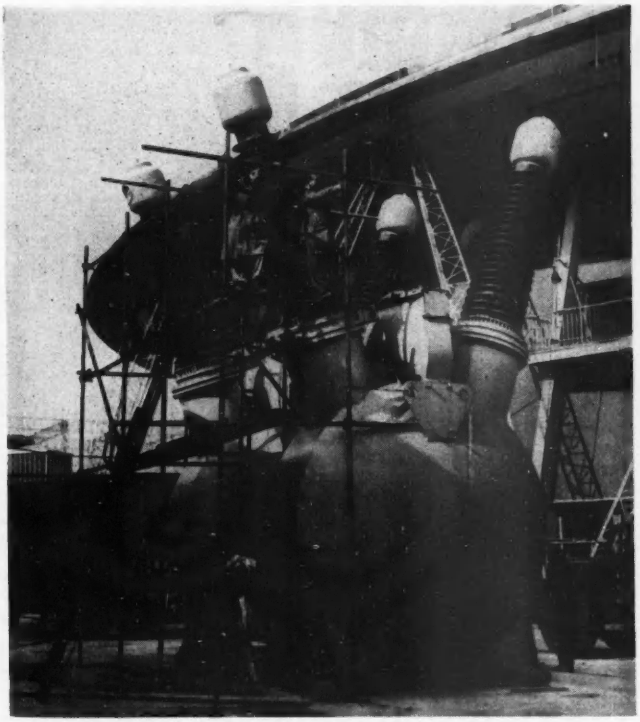
Besides steel, shortages of plant equipment all along the line are contributing most to BEA's troubles. Boilers are a big headache. BEA takes 40% of Britain's boiler production. Another 40% goes for export and 20% to private customers. The export figure will go down considerably this year and in the future, as BEA now has license to grab boilers earmarked for export where it can.

More than material shortages are plaguing Britain's electrical suppliers. BEA's record on plant breakdowns and overhauls is going from bad to worse. Lord Citrine admitted that total plant out of commission in the peak load month of January, 1951, was 14.9%. It was only 11.4% in the same month of 1950. During 1950 loss of capacity due to breakdowns and overhauls amounted to 7.2%. To make matters worse, a big share of this loss is coming from "teething troubles" in new installations.

Then BEA always has a good excuse in Britain's atrocious weather. Officials figure that a fall of one degree in temperature in the winter results in 100,000-kw increase in load. On one occasion last winter the mercury dropped 14 degrees in a few hours. It would have required the total output of the two largest power plants in Britain to make that deficit up. But the plain fact is Britain has no power reserve at all to fall back on.

Plants to Be Commissioned in Britain This Year

Name and Location	Ultimate Capacity (Kw)
West Ham "B", London	120,000
Bromborough, Cheshire	200,000
Skelton, Grange, Leeds	360,000
Westwood, Wigan, Lancashire	120,000
Braehead, Glasgow	200,000
Nechells "B", Birmingham	210,000
Blackwell Point, London	90,000
Rye House, Enfield, Lee Valley	192,000



BRITAIN LOOKS to electrical research to help pull her out of power dilemma. Here workmen install first two of three phases of novel oil circuit breaker at London's South Bank Exhibition. Oil-saving design of 2,500-Mva, 275 kv breaker reduces volume 30%. Unit is largest of its type ever built in England

What makes BEA so vulnerable to bad weather is the fact that an overwhelming majority of Britishers heat their homes with inefficient electric heaters.

These dilemmas have led the Labor government to adopt a frankly restrictive policy towards power for the foreseeable future. The ministry estimates that power cutoffs last year cost Britain $28 million in industrial production. With rearmament needs to care for, this just can't go on.

The government hopes to save some power within industry itself. This would be done, for the most part, by spreading the work load and thus the power load—something the unions have been fighting tooth and nail. Also industries are being urged to provide more and more of their own power.

But the real brunt must inevitably fall on the householder. One suggestion has been a big hike in rates. Electricity rates haven't risen anything like other costs in recent years. The cost of electrical supply in Britain amounts to only 2% of the gross national product.

Lord Citrine, an ex-trade union leader, has made no bones about the fact that he will (and can) block any such step. Labor politicians, likewise, don't like to do anything so unpopular.

The alternative, hardly less popular, promises to be an Act of Parliament which will allow BEA to install "load limiters" in every British home. Several devices are being considered, but the net effect of each will be to cut off power to the home (or at least make the lights "bobble") when frequency and voltage fall below a certain level. Plans for introducing these devices are already well along.

The government admits it is entering another vicious circle—that the cost of producing load-limiters can only retard the power program even

more. But the ministry claims the step is absolutely necessary and that the cost will only be a "drop in the bucket" compared to planned power investment.

If there is a way out of this mess, it lies in the hands of Britain's power researchers and engineers. The one bright spot in BEA's record over the past year is the continuing upward trend of thermal efficiency—21.15% in 1949; 21.33% in 1950; and 21.5% so far this year. And reports of promising new techniques involving gas turbines, bigger-than-ever steam plants, and, of course, atomic power continue to crop up in technical discussion and the press.

Supergrid to Be Opened

In transmission, BEA's 1,100-mile, 275-kv supergrid, the first link of which is to be opened this year, is already overshadowed by talk of circuits up to 500 kv. BEA technicians are watching Sweden's progress with a 380-kv grid to be put in operation next year.

Gas turbines are receiving most attention from Britain's power engineers. Three power installations—two of 15,000 kw and one of 12,500 kw—are to be commissioned this year.

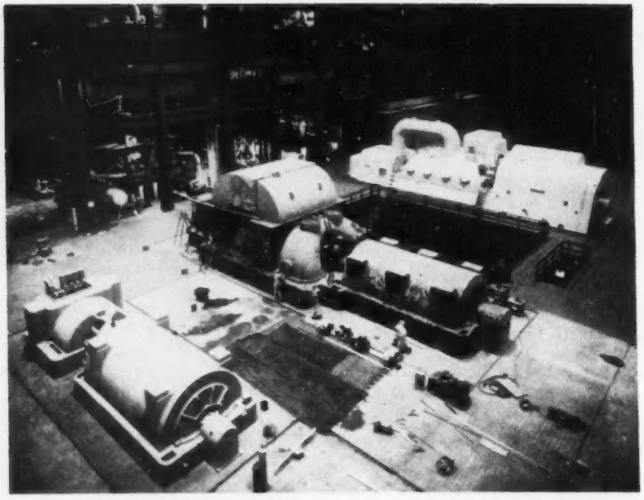
It will be through the development of gas turbine plants that the British will harness atomic energy for power, when and if they do. A research project on the possibility of using heat from atomic piles to generate electricity is in the design stage at Britain's number two atomic research center at Sellafield, Cumberland.

Could Save Britain

These developments could save Britain. With coal supplies hopelessly inadequate to meet demands of an expanding industry (coal exports this summer were stopped altogether), a new prime source of energy could revolutionize the country. But, as Sir Henry Self, BEA's deputy chairman for administration warns, none of these developments is right around the corner.

"Long years of development," he said, "still lie ahead for the translation of present knowledge into concrete practice and the establishment of large plants on a national scale."

Even allowing for traditional British understatement, the power outlook will be discouraging for some time.



SECOND 150,000-KW UNIT has been installed at Commonwealth Edison Co's Ridgeland Station, Chicago. Low pressure element is in center and high pressure element at left. At the right is the first unit. Commonwealth Edison will add 770,000 kw in next four years, bringing total system capacity to 3,700,000

Virginia Co-ops Give Up Plan to Make Own Power

Individual co-ops of the Virginia Old Dominion Group have given up the idea of making their own power in favor of buying it from a private utility.

Six of the 11 co-ops in the Old Dominion Power Cooperative have signed new contracts with Virginia Electric & Power Co and agreed to drop their fight for federal money to build their own generating and transmission facilities.

Under the new contracts, the co-ops will buy power at a straight 7.5 mills per kwhr—a 25% reduction under the previous schedule. The new rate is the same one which Vepco offered more than a year ago on a five-year contract basis, but which the co-ops did not accept because they feared it would hurt their chances of obtaining federal money to build their own power plants.

Virginia State Corporations Commission last December ruled that Old Dominion could not accept a $14.3 million loan approved by Rural Electrification Administration for generating and transmission construction. Old Dominion appealed in the courts, but the new agreement reached with member co-ops cancels court action.

A Vepco official said he expects the remaining five members of Old Dominion to sign new contracts as soon as administratively possible. The contracts are for one year, and are self-renewing unless terminated by one of the parties on 60 days' notice.

Vepco has declined to recognize the super-cooperative and is signing the contracts with each of the 11 individual organizations.

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Grants Delaware Permit

Federal Power Commission has adopted a recommendation of Chief Examiner Frank A. Hampton that it issue a one-year preliminary permit to Delaware River Development Corp, Jersey City, N. J., for investigation of a hydroelectric project on the river in New Jersey, Pennsylvania, and New York (EW, June 4, p 66.)

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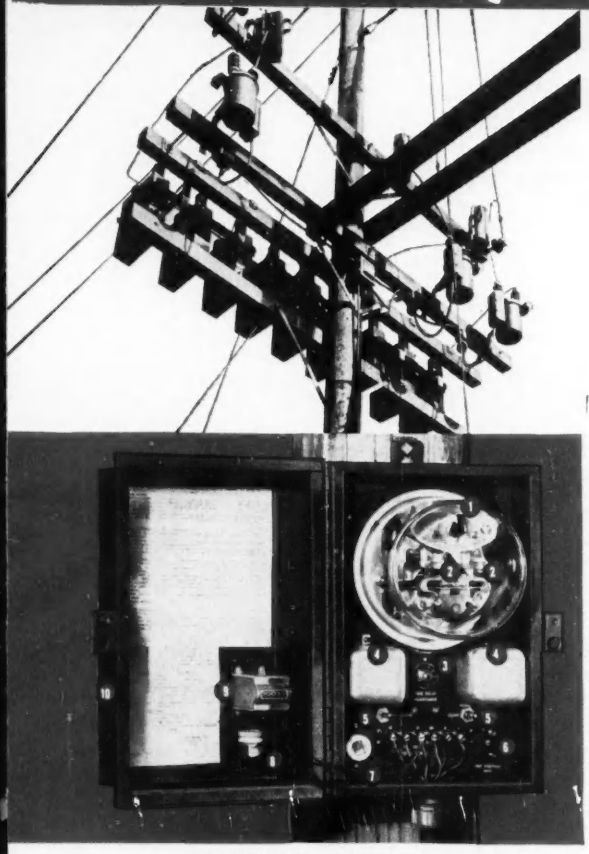
Tacoma Grants Pay Raise

City Light electrical workers at Tacoma, Wash., have received pay raises of about 4% in an ordinance approved by the city council. The increases were authorized following negotiations with the International Brotherhood of Electrical Workers, AFL.

this 225 kvar automatic switched capacitor installation



Less than $6.37 per kvar

for equipment including
Elemex Capacitors, Kyle Type GR Switches, New L-M Voltage-Sensitive Control, Capacitor Racks, Cutouts, and Arresters

(Only $5.92 per kvar for 300 kvar bank for 4160 volt delta or 2400 volt wye.)

This unprecedented low cost of $6.37 per kvar for small banks of automatically switched capacitors is made possible through the introduction of L-M's new control equipment. At this low cost you are now justified in installing and taking advantage of all the dollar benefits switched capacitors can give you.

L-M's New Voltage-Sensitive Control

L-M's new voltage-sensitive control has been field-tested for more than two years, and is now in full production. Although fundamentally designed for controlling the Kyle type GR oil switch, its flexibility permits its use with other solenoid or motor-driven equipment, including large breakers.

Heart of the control is basically a watt-hour meter modified to make it volt-sensitive. Over 3/16" contact travel per volt (120 volt base) assures extremely sensitive operation. Voltmeter is temperature compensated to ±1% accuracy from −30° F to 140° F. Line voltage can be determined within this accuracy without the use of external portable instruments. Once band width and midpoint settings are established, they are accurately maintained and need no periodic checking.

Voltmeter is mounted in a standard meter socket. Installation can be completed and tested before meter is installed, so that the test engineer doesn't need to be present until the line crew has finished its work.

Arc-suppression and filter circuit assures complete freedom from interference at telephone, radio, or television frequencies.

L-M Voltage-Sensitive Control

1. Nominal line adjustment on voltmeter—110 to 130 v.
2. Band width adjustment—2 to 12 v. with recommended minimum of three volts.
3. Time delay adjustment—instantaneous to 4½ minutes. Synchronous motor drive unaffected by variation in ambient temperature or voltage.
4. Enclosed selector relays—carry full burden of oil switch driving mechanism.
5. Toggle switches permit automatic, test, or instantaneous manual operation of oil switches.
6. Line voltage test connections.
7. Fuse protects entire circuit.
8. Spare fuse plug.
9. Operation counter (optional).
10. Weather-proof cabinet with threaded conduit nipple and multiple knockouts.

Get the whole story. Ask the L-M Field Engineer for bulletin on Elemex Capacitors and information on L-M's complete switched capacitor installation and the new voltage-sensitive control; or write Line Material Company, Milwaukee 1, Wis. (a McGraw Electric Company Division).

LINE MATERIAL Capacitors

Completely Coordinated Equipment for Distribution Today

OWENS RIVER GORGE Plant No. 2, being erected in rough terrain of California's Eastern Sierra, will have two sister plants

CONTROL PLANT for LA's three-step system is No. 3, in Birchim Canyon at junction of Owens River and Rock Creek

PENSTOCK for gorge project was transported to sites by truck caravan through Sierra country. Sections varied from 30 to 40 ft in length and were nine ft in diameter. Each section weighed about 25,000 lb. LA department car led the long convoy

LA's Three Steps to Power

Water cascading in three stages down Owens River Gorge east of the High Sierra is to be the source of new power for Los Angeles. Unique topography of the gorge has permitted the city's Department of Water & Power to construct three identical hydro plants along its length, making use of a 2,375-ft drop. Each plant will house a 37,000-kw generator, and all will be controlled by Plant No. 3, located farthest downstream at the junction of the river and Rock Creek. First power, from Plant No. 3, will be delivered later this year.

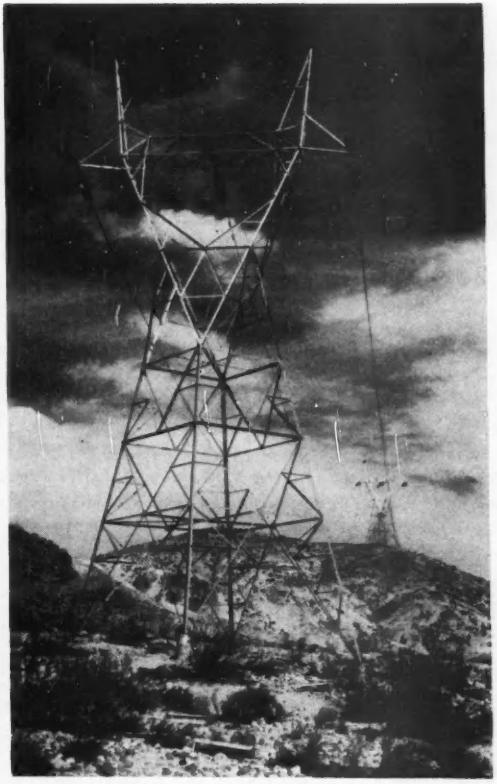
Water reaches the uppermost plant through a tunnel 37,576 ft long. The unit has a static head of 800 ft. This fluctuates between 725 and 826 ft, depending on height of water in Crowley Lake behind Long Valley Dam farther upstream.

A tunnel from the afterbay of Plant No. 1 leads to penstocks for No. 2; another picks up discharge from No. 2 and carries it to penstocks for No. 3.

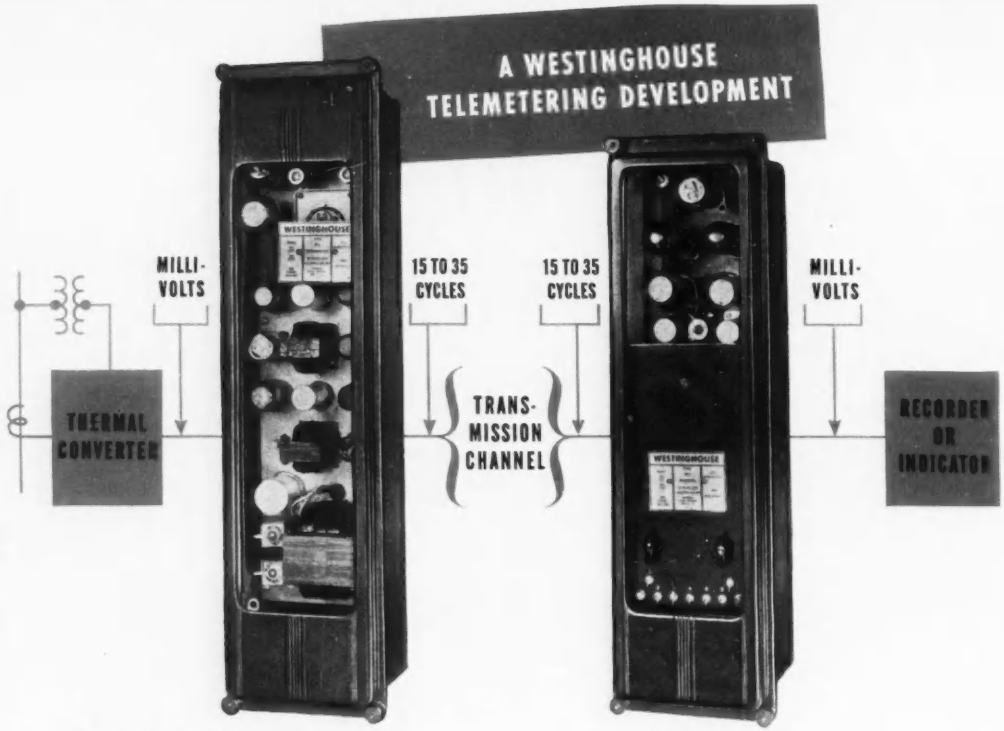
Power from the project will reach the city over a 260-mi, 230-kv line. The line, first segment of the $43-million project to be completed, is supported by 1,274 towers each 102 ft high.

Owens River Gorge is the last hydroelectric site available to the department in California. The municipal's engineers are now looking to the controversial Colorado for much-needed additional capacity.

GORGE TOPOGRAPHY permitted department to install three identical 37,500-kw stations to utilize a total drop of 2,375 ft



230-KV LINE will carry power 260 mi from gorge plants to Los Angeles. Here the line crosses desert of Central California



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Response is instantaneous—only 0.3 seconds, exclusive of end devices—when you telemeter with Freq-O-Tron. And you can transmit any value—over long or short distances—employing any medium; microwave, power line carrier, or pilot wire.

Westinghouse Freq-O-Tron equipment consists of the new Types IT-1 Transmitter and the IR-1 Receiver, each self-contained in compact, switchboard-type cases. Employed with end devices, this new equipment provides a reliable means of telemetering any value that can be converted to a proportional d-c millivolt equivalent.

Freq-O-Tron also provides for flexible totalizing. Any number of similar quantities can be totalized at either the measuring stations, intermediate stations, or the receiving stations.

For complete information on the latest advance in fast, accurate, versatile telemetering, write for Freq-O-Tron Bulletin DB 41-810. Westinghouse Relay Application Engineers are available to help on specific application problems. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna.

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TELEMETERING

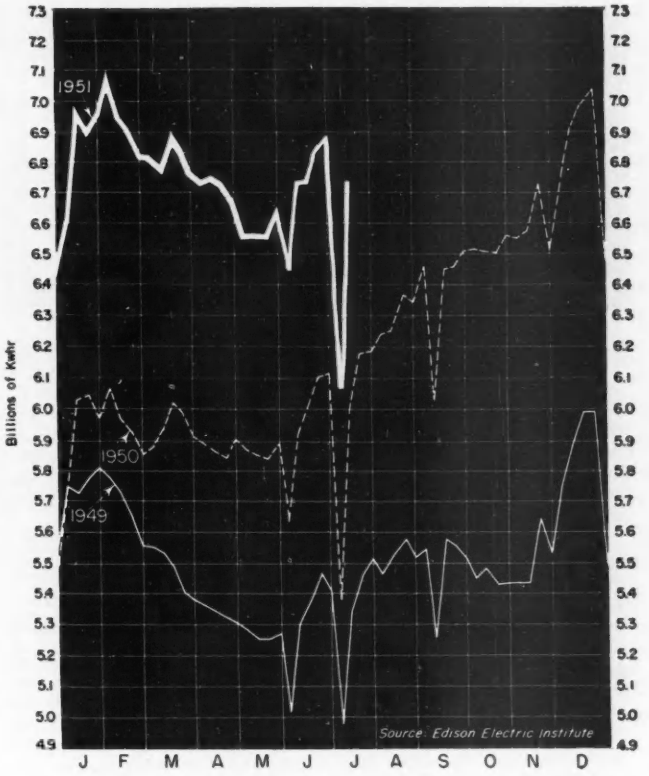
May Energy Production Sets Record for Month

Electric utility production of energy for May set a new record. The Federal Power Commission reports that the 29,871,064,000 kwhr produced during the month exceeded May, 1950, production by 12.6% and is the highest May total on record.

The output for May was 2% higher than April's 29,293,091,000 kwhr.

Production for the year ended May 31, 1951, of 348,619,690,000 kwhr was the highest total of any 12-month period to date. It exceeded by 1% the previous maximum set during the period ended April 30, 1951, and was 15.7% more than output during year ended May 31, 1950.

Water power plants produced 8,536,611,000 kwhr in May, an increase of 0.7% over May, 1950. As a percentage of May's total production water power output decreased from 32% last year to 28.6% this year. Fuel plants produced 21,334,453,000 kwhr during May.



Output Week Ended July 14—6,738,873,000 Kwhr

Weekly Output, Millions Kwhr

1951	1950	1949
July 14 6,739	July 15 6,006	July 16 5,342
July 7 6,077	July 8 5,380	July 9 4,982
June 30 6,898	July 1 6,115	July 2 5,410
June 23 6,835	June 24 6,102	June 25 5,466
June 16 6,747	June 17 6,012	June 18 5,373
June 9 6,734	June 10 5,921	June 11 5,300
June 2 6,445	June 3 5,632	June 4 5,018
May 26 6,653	May 27 5,894	May 28 5,270
May 19 6,559	May 20 5,845	May 21 5,255
May 12 6,567	May 13 5,864	May 14 5,527

Percent Change from Previous Year

	July 14	July 7	June 30
New England	+ 6.6	+10.7	+ 9.4
Mid-Atlantic	+10.2	+12.3	+12.6
Central Industrial	+ 9.7	+12.9	+11.5
West Central	+ 9.0	+12.0	+ 9.8
Southeast	+14.9	+10.1	+13.2
South Central	+26.7	+22.5	+19.0
Rocky Mountain	+13.2	+15.1	+12.5
Pacific Coast	+11.2	+12.3	+13.9
Total United States	+12.2	+13.0	+12.8

MEETINGS

American Institute of Electrical Engineers
Pacific General Meeting, Multnomah Hotel, Portland, Ore., August 20-23; Fall General Meeting, Hotel Cleveland, Cleveland, Ohio, October 22-26.

Pacific Electronic Exhibit
Civic Auditorium, San Francisco, August 22-24.

Illuminating Engineering Society
National Technical Conference, Hotel Shoreham, Washington, D. C., August 27-30.

Northern California Electrical Bureau
Annual Exposition, Civic Auditorium, San Francisco, September 1-9.

Rocky Mountain Electrical League
Fall Convention, La Fonda Hotel, Santa Fe, N. M., September 9-12.

★Edison Electric Institute
Commercial Cooking Committee, EEI Headquarters, 420 Lexington Avenue, New York, September 10-11; Prime Movers Committee, Statler Hotel, Buffalo, N. Y., October 1-2; Meter-Service Committee, Purdue University, Lafayette, Ind., October 1-3; Electrical Equipment Committee, New Ocean House, Swampscott, Mass., October 8-9; Transmission-Distribution Committee, Sheraton Hotel, Rochester, N. Y., October 10-11.

Instrument Society of America
National Instrument Conference-Exhibit, Sam Houston Coliseum, Houston, Tex., September 10-14.

International Association of Electrical Inspectors
Southwestern Section, Hotel Lafayette, Long Beach, Calif., September 13-15; Northwestern Section, Hotel Davenport, Spokane, Wash., September 19-21; Western Section, Hotel Fontenelle, Omaha, Neb., September 25-27; Eastern Section, Chalfonte-Haddon Hall, Atlantic City, N. J., October 1-3.

Pennsylvania Electric Association
Annual Meeting, Benjamin Franklin Hotel, Philadelphia, September 18-19; Joint Relay-Communications Committee Meeting, Emerson Hotel, Baltimore, Md., October 18-19.

Public Information Program
Annual Workshop Conference, Edgewater Beach Hotel, Chicago, September 20-21.

Wisconsin Utilities Association
Accounting Section, Plankington Hotel, Milwaukee, Wis., September 20-21.

Public Utilities Association of the Virginias
Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., September 21-22.

American Society of Mechanical Engineers
Fall Meeting, Hotel Radisson, Minneapolis, Minn., September 25-28.

Iowa Utilities Association
Management Conference, Fort Des Moines Hotel, Des Moines, Iowa, October 1-2.

Southeastern Electric Exchange
Engineering-Operation Section Conference, John Marshall Hotel, Richmond, Va., October 4-5; Sales Conference, Roosevelt Hotel, New Orleans, La., October 31, November 1-2.

National Farm Electrification Conference
Annual Meeting, Hotel Gibson, Cincinnati, October 9-10.

National Electrical Contractors Association
Annual Convention, Shoreham Hotel, Washington, D. C., October 9-12.

Indiana Electric Association
Annual Convention, French Lick Springs Hotel, French Lick, Ind, October 10-12.

International Association of Electrical Leagues
Annual Conference, Roosevelt Hotel, New Orleans, October 10-13.

National Association of Railroad and Utilities Commissioners
Francis Marion Hotel, Charleston, S. C., October 16-19.

National Electronics Conference
Annual Conference, Edgewater Beach Hotel, Chicago, October 22-24.

American Standards Association
Annual Meeting, Waldorf-Astoria, New York, October 22-24.

★Addition this week.

YIELDS (%) — Operating Electric Utility Securities

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1951									
July 12	2.97	3.00	3.19	4.12	4.31	4.67	5.65	6.29	7.19
July 5	3.00	3.07	3.21	4.13	4.32	4.66	5.69	6.33	7.27
END OF QTR.									
2nd 1951	3.02	3.11	3.23	4.11	4.37	4.68	5.73	6.38	7.37
1st 1951	2.87	2.93	3.00	3.96	4.19	4.52	5.47	6.20	7.13
4th 1950	2.65	2.67	2.78	3.86	4.14	4.51	5.80	6.54	7.44
3rd 1950	2.66	2.67	2.76	3.81	4.08	4.46	5.70	6.54	7.25

Data: Reis & Chandler, Inc.

Wisconsin P&L Ordered to File Rate Schedules

Wisconsin Power & Light Co has been ordered by the Federal Power Commission to file with the FPC rate schedules for its electric service to Benton, Cuba City, Hazel Green, and Shullsburg, Wis.

The utility has been serving the four Wisconsin towns since July 1, 1950, through facilities acquired from Interstate Light & Power Co, Platteville, Wis. The commission claims that each of the sales to the towns is a sale of electric energy at wholesale in interstate commerce subject to provisions of the Federal Power Act.

The proceeding began in December, 1949, when the FPC ordered Interstate L&P to show cause why it should not be found subject to FPC jurisdiction and why it should not file its rates for the wholesale sale of energy to the four Wisconsin towns. Wisconsin Power was brought into the case when it acquired the facilities of Interstate's Platteville Division.

Energy for the Platteville Division is produced at a steam-electric generating plant at Galena, Ill., owned by Interstate L&P until July 1, 1950, and since then by Northwestern Illinois Gas & Electric Co. The energy is transmitted from Illinois to customers in Wisconsin over lines originating at the Galena plant and ending in Wisconsin. Northwestern Illinois sells the power to Wisconsin Power at the state line.

Both Interstate and Wisconsin Power contend that the FPC's jurisdiction extends only to the sale at the state line and not to sales subsequently made. The companies also claim that the lines and equipment used for deliveries and sales to the four towns are used in local distribution and not subject to jurisdiction of the commission.

The FPC, however, said that the Federal Power Act grants the commission jurisdiction over sales at state lines and all wholesale sales in interstate commerce whether the sale takes place at a state line or within a state and without regard for the kind of facilities used.

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Operating Revenues Up 11% During First Quarter

Electric operating revenues of the larger privately owned electric utilities in the United States for the first quarter of 1951 were $1,307,795,000 compared with revenues of $1,178,122,000 for the same period in 1950, according to preliminary figures announced by the Federal Power Commission. This represents a gain of 11%.

Revenue deductions, including operating expenses, depreciations, and taxes, were $1,059,289,000 for the first three months of this year, up 13.7% from $931,322,000 deducted in the first quarter of 1950.

Gross income, including other utility operating income, totaled $303,778,000 for the first quarter, an increase of 2.3% over the $297,002,000 reported for the same quarter a year ago. Net income was $229,442,000, compared with $228,649,000 in 1950.

Electric operating revenues in March were 9.8% above those for the same month a year ago. They amounted to $427,445,000 compared with $389,121,000 in March, 1950. Revenue deductions (including operating expenses, depreciation, and taxes) for the month were $351,300,000, up 12.3% from last year. Gross income increased 1.4% to $96,042,000. Net income decreased slightly to $71,578,000.

In February operating revenues amounted to $434,900,000, an increase of 11.9% above the $388,808,000 reported for February, 1950. Gross income was up 5.3% to $106,098,000. Net income increased 3.4% to $80,808,000. Revenue deductions for February were $347,665,000, a gain of 14% over those for February last year.

January operating revenues totaled $445,321,000, up 11.3% from the corresponding month in 1950 when they amounted to $400,023,000. Revenue deductions of $360,291,000 were 15% higher than a year previously. Gross income increased slightly to $101,058,000 but net income declined 2% to $76,523,000.

FINANCIAL BRIEFS

At an annual and special meeting, stockholders of Florida Power & Light Co approved an amendment permitting the company to create 50,000 shares of new 4½% preferred stock, Series A, with a par value of $100. Another amendment provides for the elimination of 50,000 shares of authorized but unissued $4.50 preferred stock, $100 par.

Public Service Co of Indiana has filed a petition with the Public Service Commission seeking authority to acquire Madison Light & Power Co through an exchange of common stocks.

Electric Utility Financing—July 7-14

Company	Description	Amount of Offering (000)	Offering Price	Yield at Price to Public
Bonds				
Minnesota Power & Light	1st mtg, 3⅝%, 1981 new money	$10,000	101.749%	3.53%
Iowa Public Service	1st mtg, 3½%, 1981 new money	5,000	100.37	3.48
SCHEDULED FOR FOLLOWING WEEK				
Preferred Stock—Scranton Electric, 21,752 sh new money, $2 million.				
Common Stock—New York State Electric & Gas, 217,904 sh new money, $5.5 million.				

IN THE INDUSTRY

FISCHER BLACK

Status of Electric Power Program

What is the true picture of the utility expansion program in terms of material available for power equipment? When third quarter allotments were first set for Defense Electric Power Administration, they turned out to represent drastic cuts. Compared with requests, aluminum was reduced from 58 million to 25 million lb or 57%; copper from 118 million to 77 million lb or 35%; and steel from 349,000 to 270,000 tons or 23%. The original requests for these materials were then scaled down considerably thereby reducing the cuts from 57%, 35%, and 23% respectively to 47%, 7%, and 20%.

Cuts for the Engine and Turbine Division and the Electrical Equipment Division of National Production Authority were in line with these. These actions which would seriously curtail the power program brought immediate action from the heads of the various divisions in NPA and Depa. Then the Electric Utility Defense Advisory Committee held a meeting which was followed by a conference with Charles E. Wilson, defense mobilizer.

Subsequently the allocations were increased materially to the point where Depa secured about 80% of its aluminum requirements, 95% of copper, and 90% of steel. Allocations to the Engine and Turbine Division of NPA were in line with these, but much deeper cuts were maintained for the Electrical Equipment Division. These average about 30%. Every effort is being made by Bonnell W. Clark's Electrical Equipment Division to up these allotments for the fourth quarter since it is perhaps too late for changes in the third quarter.

A recent statement by a high DPA official indicates that from now on the electric power industry will receive about the same amount of material as that allocated in the third quarter. Right now the worst bottlenecks are structural steel and transmission line hardware. For the last quarter of 1951, the demand for structural steel is twice the production capacity.

Copper supplies have been affected by the strike at the Garfield, Utah, smelter of the American Smelting & Refining Co. Approximately 20% of the refining capacity is located there.

The cumulative effect of these problems indicates that the electrical power program will maintain about an 80% rate for the next 12 months with a step-up to 100% from then on out.

• • •

Report on New England Economy

In an editorial in the July 9 issue of "New Republic," it is said that the "rock-ribbed New England conservatives, particularly utility heads, want no truck with federal projects." The editorial goes on to say that, "The U. S. would like to help develop TVA's in New England—but that would mean competition with the local power trust; so it is blocked."

The background for this editorial nonsense comes from a report entitled The New England Economy prepared for the Council of Economic Advisers by its committee on The New England Economy (EW July 16, p 92). This report is must reading for all utility executives as it touches many of the industry problems relating to government participation in power development. (For copies write to Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price 55c).

The committee was made up of university professors. Its chairman was Charles F. Gragg of the Harvard Graduate School of Business Administration.

Adverse comments are made on the high cost of power and obsolete generating equipment. But the high cost of power is attributed almost entirely to the high cost of fuel. The failure to pool power resources most effectively is reported as another factor. Perhaps the most important statement in the report is that, "The initiation of multi-purpose projects following surveys establishing their feasibility, should be undertaken jointly by governmental and private interests concerned.—We believe that the private utility companies should be given an opportunity to finance and operate the power component of such multi-purpose projects on the basis of allocated costs."

TECHNICAL NOTES

ARCHER E. KNOWLTON

Televised microscopy gives sharper images than the eye because of application of tubes particularly sensitized to specific wave lengths of light.

Vertical condensate pumps save space and headroom, eliminate the condenser pit and facilitate placing motors above high-water levels.

Life testing of radio tubes still awaits an acceptable technique for acceleration representative of normal service exigencies.

Concrete working as laid with compression rolling after laying tends to result in increased strength because the water is aided in penetration through the relatively impenetrable colloidal film that surrounds each particle of cement.

New atoms "fabricated" since plutonium (Pu) was concocted from uranium are technetium (Tc), promethium (Pm), astatime (At), francium (Fr), neptunium (Np), americium (Am), curium (Cm), berkelium (Bk), californium (Cf).

Water consumption in the U.S.A. has quadrupled in 50 years; factors of increase for irrigation 4 times, for farming 2½ times, for municipal use nearly 5 times, for industrial use nearly 5 times, for power 7 times.

Battery life in floating service is estimated to be double that of cells using antimony alloy if the positive grids contain 0.065 to 0.090% calcium.

Solders of the ST (save tin) type can be of the silver-tin-lead alloy, make a good joint, use the same fluxes and cost less but do require higher temperature.

NEWS ABOUT PEOPLE

Wisconsin P&L Elects M. H. Frank Executive VP

M. H. Frank has been elected to the newly created position of executive vice president of Wisconsin Power & Light Co. Replacing him as vice president in charge of employee and public relations is John E. Canfield, public information director.

M. H. FRANK

Frank, a Wisconsin P&L vice president since 1937, began his utility career with Indiana & Michigan Electric Co at South Bend, Ind., and later worked for the Galesburg (Ill.) Railway Light & Power Co. He became district manager of Eastern Wisconsin Electric Co, Wisconsin P&L predecessor company, in 1918 and came to Madison as assistant to the vice president in 1930.

Canfield, recently elected president of the Public Utilities Advertising Association, joined Wisconsin P&L in 1930 as an electrical engineer. He served three years as an industrial power salesman and then went to Edgerton as local manager. He returned to Madison in 1937 as commercial sales manager. Four years later he was made special company representative at the Badger Ordnance Works. Canfield became public information director at the end of the war.

•

Walter S. Church has been appointed general superintendent of construction for Duquesne Light Co. He succeeds **Edward J. Clark,** who has retired after 38 years of service. Church, who has been assistant general superintendent of construction since 1945, has been with Duquesne Light and its affiliates for almost 30 years. Clark became general superintendent in 1931 and supervised construction of the Reed and Phillips power stations and until his retirement the Elrama station now being built by the company.

•

New PCEA President Is Emery D. Sherwin

(*See Front Cover*)

Emery D. Sherwin, vice president in charge of operations for San Diego Gas & Electric Co, has taken office as president of the Pacific Coast Electrical Association. He was elected at the association's annual convention held in Los Angeles.

Sherwin succeeds F. A. Tracey, president of Sierra Pacific Power Co, as head of PCEA. He had been a vice president of the organization.

Associated with the electrical industry for 30 years, Sherwin spent the earlier part of his career serving as chainman on a surveying crew, draftsman, surveyor, and estimator for San Diego G&E. In 1923 he was made assistant superintendent of electric transmission distribution. A year later he became assistant superintendent of electric production.

Promoted to assistant to the general superintendent in 1930, Sherwin became general superintendent two years later. In 1941 he was made a vice president of the company.

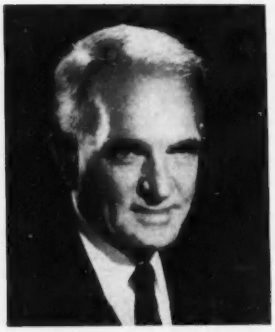
•

E. A. Tranter has been appointed comptroller of Line Material Co, Milwaukee, Wis. Chief accountant of the firm since 1937, he succeeds **W. S. Pierick** who left the company recently. Tranter will be assisted by **G. O. Miller** who will serve as assistant general comptroller and also as field comptroller.

Speer, Beams Made VPs of Texas Power & Light

E. P. Speer and George W. Beams have been elected vice presidents of Texas Power & Light Co.

Speer, with Texas P&L for 37 years, served as assistant to the president until his recent promotion. He joined the company's meter department at Hillsboro in 1913 and two years later was transferred to Waco. He later became assistant superintendent and then superintendent of the shops at Waco. In 1929 he went to Dallas and later in the year became assistant to the president.



E. P. SPEER

G. W. BEAMS

Beams, who has been assistant vice president, began his utility career with Texas P&L as a student engineer in

(*Continued on page* 27)

L-M Protective Lighting is PRODUCTIVE Lighting

No dark hideaways for intruders, even in this back alleyway. A Spherolite installation.

Protection is only *half* the story when you install L-M plant-protective lighting.

PRODUCTION, not only during the present emergency, but in the years to come, is an equally important consideration in every L-M installation.

L-M Lighting Engineers, backed by more than 35 years of experience with outdoor lighting, are designing installations which not only meet War Standards Requirements but also provide additional light on loading docks, railroad sidings, yards, storage areas, parking lots and entrances.

Dark spots are potential production-bottlenecks. They can also be scenes of lost-time accidents. By eliminating these dark areas, L-M Protective Lighting installations will continue to pay off for years to come.

A lighted fence, with controlled light directed at the fence and beyond. Guards patrol roadway in semi-dark at right of picture.

Over-the-fence lighting, with glare on any approaching intruder. Typical use of L-M Fresnelite.

Two L-M Protective Lighting Units

L-M Spherolite provides 5 different light patterns. Combinations of reflectors and refractors to provide correct light pattern for almost any requirement. When equipped with L-M Autolatch, it can be serviced from ground with lamp stick; no ladder needed.

L-M Fresnelite—specially designed glare unit to provide a broad, fan-shaped light pattern. Ideal for over-the-fence lighting.

GET THIS LIGHTING BULLETIN

Ask the L-M Field Engineer for L-M's bulletin on Protective Lighting. Describes L-M Lighting Engineering Service and L-M Luminaires. Or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

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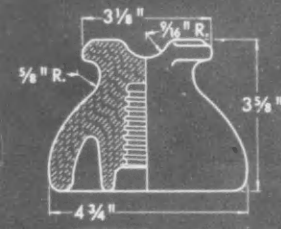
Planning New Distribution Lines?

Put it up to PINCO!

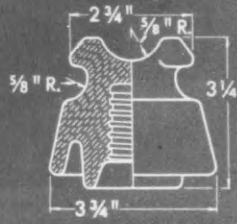
Putting up a Distribution Line is no problem when you "Put it up to Pinco" . . . because Pinco has everything you need—Insulators . . . Line Hardware . . . Guy Strains. Pinco makes them all, and they're all "tops" in performance as thousands of miles of such lines can prove. Engineered and built to distribution line requirements, Pinco products are not only RIGHT *for* the Job but RIGHT *on* the Job . . . for You!

Refer to Pinco Catalog No. 49 for complete electrical and mechanical characteristics.



PINCO L 63

Dry Flashover . . . . . 65,000 volts
Wet Flashover . . . . . 40,000 volts
Leakage Distance . . . . . 7¼"
Mechanical Cantilever Strength 2500 lbs.



PINCO L 223

Dry Flashover . . . . . 50,000 volts
Wet Flashover . . . . . 30,000 volts
Leakage Distance . . . . . 6"
Mechanical Cantilever Strength 2500 lbs.

PINCO L 1510

Dry Flashover . . . . . 60,000 volts
Wet Flashover . . . . . 30,000 volts
Leakage Distance . . . . . 7"
M & E Strength . . . . . 10,000 lbs.

No. L63

Pinco Pin Type

No. L223

Pinco Pin Type

No. L1510

Pinco Suspension Type

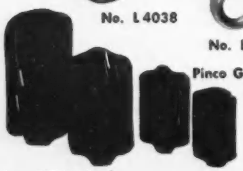
Pinco Strain or Dead-End Clamps

No. L4038

No. L1921

No. L4550

Pinco Guy Strains



Nos. L289
L506
L504
L502

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766 Main St., Lima, N. Y.

Sales Agents: JOSLYN MFG. & SUPPLY CO.
Offices in Principal Cities

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Suspension Insulators . . . Switch and Bus Insulators . . . Distribution Clamps . . . Distribution Pin Types and Guy Strains . . . Transmission Line Fittings . . . Tree Insulators . . . Transformer and Circuit Breaker Bushings . . . One Piece and Multi-part High Voltage Pin Types . . . Suspension and Strain Clamps . . . Indoor Bus Support Porcelain . . . Lightning Arrester Porcelain.

C-E REHEAT BOILERS

GLENWOOD STATION

LONG ISLAND LIGHTING COMPANY

THE C-E Unit illustrated here is now in process of fabrication for the Glenwood Station of the Long Island Lighting Company at Glenwood Landing, Long Island, N. Y.

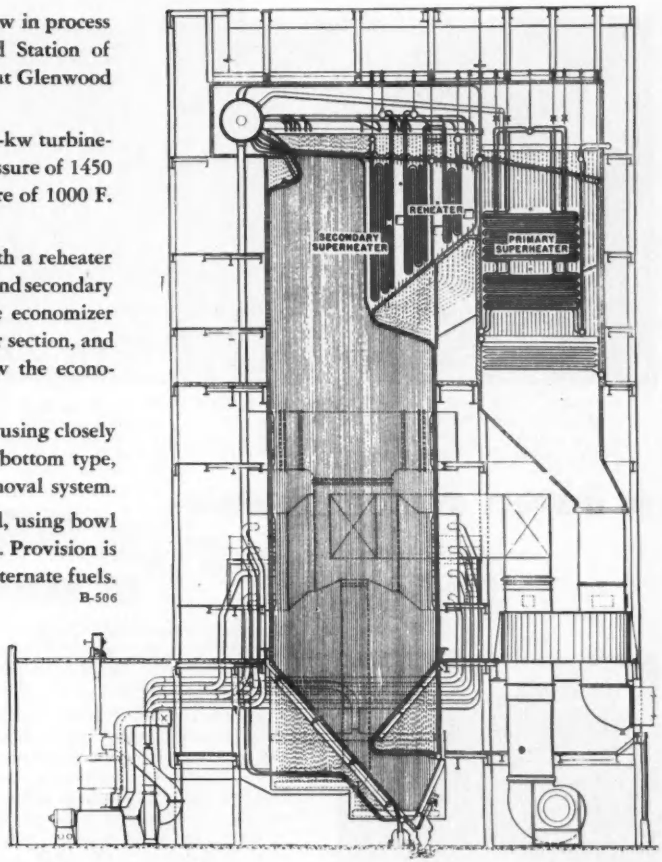
It is designed to serve a 90/99,000-kw turbine-generator operating at a throttle pressure of 1450 psi with a primary steam temperature of 1000 F. reheated to 1000 F.

The unit is of the radiant type with a reheater section located between the primary and secondary superheater surfaces. A finned tube economizer is located below the rear superheater section, and regenerative type air heaters follow the economizer surface.

The furnace is fully water cooled, using closely spaced plain tubes. It is of the dry bottom type, discharging to a pneumatic ash removal system.

Pulverized coal firing is employed, using bowl mills and tilting, tangential burners. Provision is made to use oil and natural gas as alternate fuels.

B-506



C-E

COMBUSTION ENGINEERING—SUPERHEATER, INC.

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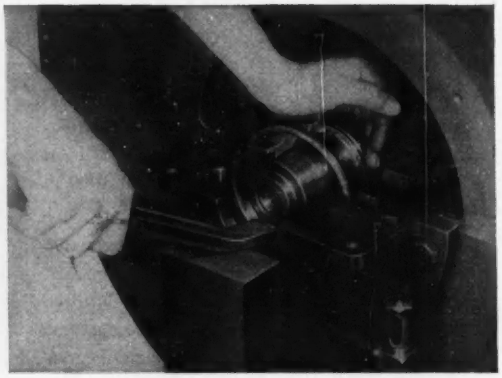
ALL TYPES OF BOILERS, FURNACES, PULVERIZED FUEL SYSTEMS AND STOKERS; ALSO SUPERHEATERS, ECONOMIZERS AND AIR HEATERS

TO GET AT A BEARING

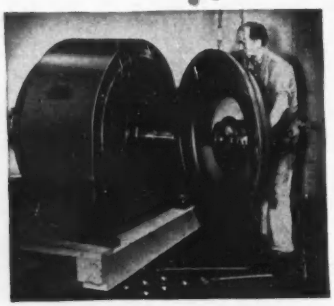
all you remove is the bearing cap ...IN ELLIOTT MOTORS!

The bracket as well as air directing baffles stay put—you don't need to touch any part of them. The photo above shows why. As soon as you raise that bearing cap, there's the bearing, completely accessible. The top half of the bearing shell can then be lifted off.



To remove the bottom half of the bearing shell, you simply take the weight of the rotor off it, roll it round to the top of the shaft, and lift it out from under the oil ring. There's a boss on the end of the shaft to take your pinchbar. That's what it's there for—you can't hurt it.

TO INSPECT STATOR WINDING— it's almost as easy TO REMOVE A ROTOR



■ Simply remove the capscrews from the bracket on the non-drive end, and swing the bracket off and away from the stator. The bracket is a single assembly—baffles and all. It comes off in one piece—no mess of parts to fuss with.

On the drive end, first remove both halves of the bearings as above. Next, remove four cap screws securing the lower-bearing housing and lift clear of the bracket. Then if it is desired to pull the rotor, it can be removed very simply through the non-drive end with the coupling half still in place on the shaft, since the coupling half will clear the opening in the end bell on the drive end. If it is desired to inspect the stator winding, the bracket can be removed over the coupling if the rotor is still in place.

It's a new way to build motors, providing a new low in maintenance and a new high in performance. Elliott Fabri-Steel motors, in a variety of types, including outdoor designs, are built in sizes from 200 hp up. Write for bulletins on the motors you need.

Elliott FABRI-STEEL MOTORS AND GENERATORS

ELLIOTT COMPANY

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AMPERE, N. J. • SPRINGFIELD, O. • NEWARK, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES

HALF CENTURY OF 1901 EC 1951 POWER PROGRESS

L-819

News About People

(*Continued from page* 22)

the company's distribution department in 1929. The following year he was made line foreman of that department's central division. In 1931 he was transferred to Waxahachie in the same capacity. Two months later Beams was brought to the Dallas office and while in the distribution department there served in the metering division and as field, office, and design engineer. He became assistant to the president in 1937 and assistant vice president in 1943.

•

Libraries Group Elects Miss Martin Chairman

Miss Irene Martin, librarian of Union Electric Co of Missouri, has been elected chairman of the Public Utilities Section, Science-Technical Division of the Special Libraries Association. She succeeds Miss Josephine I. Greenwood, Consolidated Edison Co of New York.

The Public Utilities Section is comprised of 62 librarians of electric, gas, and telephone companies in the United States and Canada.

Other officers elected were Richard D. Green, National Association of Electric Companies, vice chairman; and Miss Phyllis L. Foreman, Hydro-electric Power Commission of Ontario, secretary.

•

Dr Arthur W. Wishart, vice president of the McKee Glass Co, Jeannette, Pa., has joined Westinghouse Electric Corp as manager of its recently organized Glass Manufacturing Division. He will make his headquarters temporarily at the company's glass plant in Fairmont, W. Va.

Ralph Conner has been appointed assistant to the general commercial manager of Puget Sound Power & Light Co, Seattle. He has been with the company 22 years, most recently as supervisor in the commercial and industrial department of the central division.

A. E. Davison, engineering consultant for the Electric Engineering Department of the Hydro-Electric Power Commission of Ontario, has retired.

Ingledow Named Head of Canadian Association

New president of the Canadian Electrical Association is Thomas Ingledow, vice president and chief engineer of British Columbia Electric Railway Co, Vancouver.

He served as vice president of the association until his election to top post last month. He is past president

THOMAS INGLEDOW

of the British Columbia Association of Professional Engineers and past vice president of the Northwest Light and Power Association.

Ingledow joined B. C. Electric as chief engineer in 1940 and four years later was elected a vice president of the company. Previously he had worked for Montreal Light, Heat & Power, Consolidated, Stone & Webster, Inc, Boston, and the Hydro-Electric Power Commission of Ontario.

Vice presidents elected were F. L. Lawton, Saguenay Power Co, Montreal; C. I. Bacon, Cornwall (Ont.) Street Railway, Light & Power Co; and A. C. Brittain, Gatineau Power Co, Ottawa.

•

Maj Gen John S. Bragdon, Army Deputy Chief of Engineers, has retired from active duty after 36 years of service in the Corps of Engineers. He has served as assistant to the North Atlantic Division Engineer, New York, District Engineer at Providence, R. I., and South Atlantic Division Engineer. In 1944 Bragdon was ordered to Washington as chief of the Military Construction Division and four years later was made Assistant Chief of Engineers. He became Deputy Chief of Engineers in 1949.

N. J. MacDonald, vice president in charge of sales for Thomas & Betts Co, Elizabeth, N. J., has been appointed vice president in charge of all the company's operations. MacDonald has been with Thomas & Betts since 1921.

Millard C. Westrate has resigned as superintendent of the Board of Public Works in Holland, Mich., to join the staff of Commonwealth Associates Jackson, Mich., consulting engineering firm. Westrate became superintendent at Holland in May after serving as assistant superintendent for six and a half years. President of the Michigan Municipal Utilities Association for the past year, he has also resigned this position.

E. W. Hogg, assistant manager of the Bluefield division of the Appalachian Electric Power Co, has been appointed executive assistant in the general offices of the company at Roanoke, Va. He has been with the company since 1927 and served as manager of the Pulaski, Va., district before going to Bluefield in 1947.

A. O. Olson, manager and chief engineer of Hetch Hetchy Water Supply & Power Project, San Francisco, will retire in December. Chief engineer since 1945, he has served the city for 25 years.

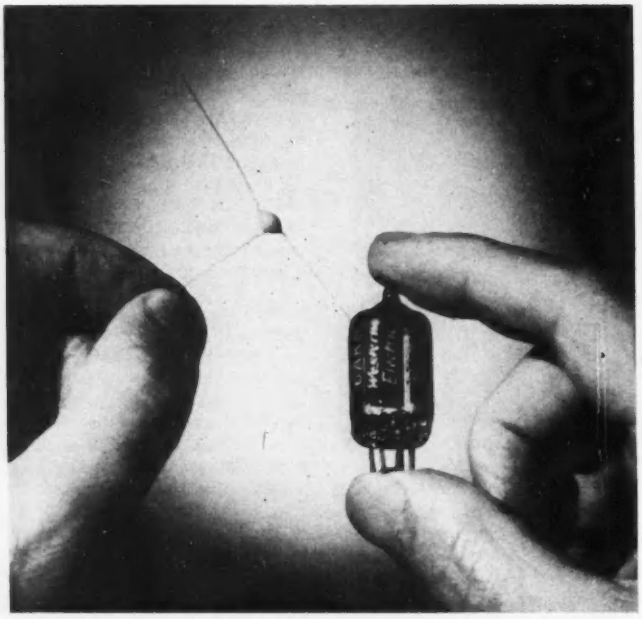
OBITUARY

Silas Emmet Skelley, 72, former personnel supervisor of Pacific Power & Light Co, died recently at Oswego, Ore. He had served with electric utility companies 28 years before retiring in 1949. Skelley was the first manager of the investment department of Pacific Power & Light and Northwestern Electric Co. He later was associated with Electric Bond & Share Co.

Francis C. Springer, 54, district sales representative for Westinghouse Electric Supply Co, died July 11 at Middletown, N. Y.

Oscar G. Miller, 63, New York district manager of the Rome (N. Y.) Cable Corp died at Rutherford, N. J., July 7.

MANUFACTURERS and MARKETS



SPIDERY OBJECT at left is a junction transistor, a tiny amplifier developed by Bell Telephone Laboratories. For size comparison, it is shown with a miniature commercial vacuum tube. Transistor requires about a millionth of the power of the vacuum tube and is capable of amplifying electrical signals a million times

Bell System Is Planning Trial Use of Transistors

Transistors will be given a trial run in the Bell System early next year. The tiny amplifiers, invented several years ago at Bell Telephone Laboratories, have been improved to the extent that they are now as uniform in performance as vacuum tubes.

Known as "point contact" transistors, they consist essentially of two hair-thin wires resting on a tiny speck of germanium, which is a semiconducting metallic element. There is no glass envelope, no vacuum, and no heating element to cause a warm-up delay.

Transistors of this type produced at the Laboratories can withstand shock and vibration better than any known vacuum tube and are expected to have a service life considerably longer than that of tubes in current use. They also can be designed for a great many specific functions including applications presently requiring vacuum tubes. In addition, the transistor is expected to find future application in telephone apparatus where the use of vacuum tubes is not practical, as in the complex switching mechanisms which are the basis of the dial system.

The Laboratories also has developed a new type of amplifier called a junction transistor. This type of transistor has no point contacts, which in the original transistor correspond to the terminals of a vacuum tube. In the form of a small bead about half the size of a pea, it consists of a tiny rod-shaped piece of germanium treated so that it embodies a thin electrically positive layer sandwiched between the two electrically negative ends.

Junction transistors have been found to be more efficient than the point contact type, consume less power, and are smaller in size.

•

Westinghouse Employees Study American System

Westinghouse Electric Corp has launched a program designed to stimulate discussion among its employees on the benefits of the American way of life and the danger of losing those benefits.

The program, consisting of two one-hour sessions, will be presented to all of the company's 105,000 employees, in groups of not more than 20, during the summer. Employees are also given the opportunity of presenting the program to their friends and neighbors.

A film entitled "In Our Hands" is shown during the first half of the first session and is followed by a discussion period. The same procedure is followed during the second session but with a shorter movie and a longer discussion period. All sessions are given on company time with employees acting as discussion leaders.

The program was developed over a two-year period by Inland Steel Co and Borg-Warner Corp and is being made available to industry and the public by the American Economic Foundation.

MANUFACTURING BRIEFS

General Electric Co will start construction of the first buildings of its proposed Appliance Park near Louisville, Ky., shortly. The facilities will be used to produce component parts of jet engines but ultimately will become the manufacturing, engineering, marketing, and administrative center for all GE's major appliance operations.

Norway will construct an aluminum plant at Sunndalsora in the western part of the country. The plant will have a capacity of 40,000 tons a year

—almost as much aluminum as Norway currently produces. Building operations are expected to take four or five years.

Hotpoint, Inc, will devote about one-fifth of its total production to defense work in 1952. Two plants under construction in Chicago will manufacture jet engine components. At a third plant in Milwaukee the company will produce turbo superchargers. The jet engine plant will be converted to refrigerator production following completion of national defense armament.

Economic Cooperation Administration plans to lend Reynolds Jamaica Mines, Ltd, subsidiary of Reynolds Metals Co, $3,284,000 to boost bauxite-producing facilities in Jamaica, British West Indies. The loan is repayable in aluminum over a period of 11½ years. The expansion project will raise productive capacity from 410,000 tons to 750,000 tons.

SALES ASSIGNMENTS

COMPANY STAFFS

Phelps Dodge Copper Products Corp has established its New England sales offices at 828 Statler Office Building, 20 Providence St, Boston 16, Mass. Craig W. Marshall and Frank A. Stevens, Jr, will make their headquarters at the new office. The office was formerly located in Cambridge.

John A. Roebling's Sons Co, Trenton, N. J., has appointed John P. Kadlic Philadelphia district sales manager for its wire rope division.

Trumbull Electric, department of General Electric Co at Plainville, Conn., has appointed Douglas J. Donohue Atlantic district sales manager. He joined Trumbull in 1930 in the company's Pacific Northwest region and has been a salesman for its eastern territory since 1945.

Allis-Chalmers Manufacturing Co, Milwaukee, Wis., has appointed George W. O'Keeffe, manager of sales of its Boston Works. Alfred E. Kilgour has been named assistant manager of sales.

Metal Prices
July 16, 1951

COPPER, Conn. V, lb	$ .24½
LEAD, N. Y., lb	.17
ZINC, prime Western, E. St. Louis, lb	.17½
TIN, Straits, qual. N. Y., lb	1.06
ALUMINUM, ingot, base price	.19
NICKEL, base price	.59½
STEEL billets, Pitts., ton	56.00
STEEL, scrap, No. 1 heavy, Pitts., ton	45.00

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Ala., Anniston—General Electric Co., Red Rock Bldg., Atlanta, Ga., plans by Robert & Co. Assn., 96 Poplar St. N.W., Atlanta, Ga., electronic tube mfg. plant. $6,000,000.

Arizona—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., one 8,000/10,000 kva unit sub-station, one 115,000 volt horngap switch, three 115,000 volt and three 12,470 volt lightning arresters for Maricopa substation, Davis Dam Proj. Spec. 300S-28, L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

Arkansas—U. S. Eng., 300 Broadway, Little Rock, complete power house and switchyard at Bull Shoals Dam, Mountain Home, CIVENG 03-060-52-1.

Colorado—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Brush, outdoor power transformers; outdoor lightning arresters, for the Beaver Creek substa-tion, Colorado-Big Thompson Proj. Inv. No. DS-3489. furnishing, del. f.o.b. cars shipping point or f.o.b. cars Loveland, one control for four 3x3 ft. outlet gates, incl. cabinet, cabinet piping, lauxiliary equip. and electric equip. for Carter Lake Reservoir, Colorado-Big Thompson Proj., Inv. No. DS 3485. one fixed-wheel gate hoist with indicator, controls and float switch for the penstock inlet of Polehill Power Plant, Colorado-Big Thompson Proj. Inv. No. DS-3490. furnishing, del. f.o.b. cars shipping point or f.o.b. cars Granby, substation, transformer, distribution board, for Willow Creek Pumping Plant, Colorado-Big Thompson Proj., Spec. SD-3479. L. N. McClellan, ch. engr.

Florida—Escambia River Electric Cooperative, Jay, 21 mi. 44 kv rural distr. lines, 13 mi. tie line and related sub-stations, Escambia Co. $390,000.

Idaho—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars American Falls, 3 vertical-shaft 14,000 h.p. 150 rpm hydraulic turbines for America Falls Power Plant, Minidoka Proj., Inv. No. DS 3487.

Mass., Bedford—U. S. Eng., 857 Commonwealth Ave., Boston, electronics research laboratory, geophysics laboratory, on 200 acres, adjacent to Hanscom Airport. $20,000,000, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge, operators.

Minn., Windom — City, furnish erect steam generating unit in municipal power plant, $125,000. Plans deposit $35. Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, engrs.

N. Y., Niagara Falls—Speer Carbon Co., Theresia St., St. Marys, Pa., graphite electrode mfg. plant. $8,000,000.

O., Akron—B. F. Goodrich Co., 500 S. Main St., expand power facilities. $1,000,-000.

Oklahoma—Central Rural Electric Cooperative, Stillwater, 1,014 mi. rural distr. lines, Okla. 24R Lincoln, Payne Co. $980,000. C. H. Guernsey & Co., 1414 N. Robinson St., Oklahoma City, consult. engrs.

Oklahoma—Oklahoma Gas & Electric Co., 321 N. Harvey St., Oklahoma City, 50 mi. 66 kva transmission line from Oklahoma City to Southard, Oklahoma Co. $683,000.

Okla., Linsay—City, voted bonds, 850-kw. generator unit at light plant. $145,000. C. H. Guernsey & Co., 2701 N. Oklahoma St., Oklahoma City, consult. engr.

Okla., Oklahoma City—Dpt. Air Force, The Pentagon, Wash., D. C., jet engine test cells, boiler house, steam tunnels, underground paving, electrical sewers, at Tinker Air Force Base, $10,000,000. Graham, Anderson, Probst & White, 80 E. Jackson St., Chicago 4, Ill., archts.

Oregon—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash., powerhouse unit sub-station, Units 1 to 8, McNary Dam, Inv. No. CIVENG 45-164-51-2.

Pa., Sharon — Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, transformer plant addn. $250,000.

Tex., Lone Star—Lone Star Steel Co., Karnack, addnl. power plant unit, $3,500,-000.

Wisconsin—Buffalo Electric Co-operative, Alma, rural distr. lines, sys. imprvs., headquarters facilities, Buffalo Co., $133,-000.

Low Bidders & Contracts Awarded

Fla., Pensacola—Harry R. Byers, Inc., Shoreham Bldg., Wash., D. C., Low Bidder, $1,125,000, steam electric generating plant, U. S. Naval Air Station, Bldg. 45, Pensacola, Fla.

Mass., Amherst — Daniel O'Connell's Sons, Inc., 480 Hampden St. Holyoke, Mass. Low Bidder, $189,988. E206 turbine plant exten, University of Massachusetts, State, University of Massachusetts, Amherst, Mass.

S. Carolina — E. C. Bridges, Heath Springs, S. C., Low Bidder, $714,616 rural distr. lines, Proj. 50A, Sect. 5, Santee Co. Central Electric Power Co-operative, Columbia, S. C. Bids June 27.

S. Dakota—Westinghouse Electric Corp., 117 N. 13 St., Omaha, Neb. Contract Awarded, $3,970,361. furnish, install remaining 4 generators for Fort Randall Dam and Reservoir Proj., Inv. 115, near Lake Andes. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 6.

S. Dakota—Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis. Contract Awarded, $590,908, main leads, main and neutral switchgear at Fort Randall Reservoir Proj. Inv. 131, near Lake Andes. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 1.

Tex., Amarillo—Broome Electric Constr. Co., Amarillo, Tex. Low Bidder. $163,880. direct current lines from power plant to various plant bldgs., Phase 1, Inv. No. Eng 34-066-51-52. Amarillo Air Force Base. U. S. Eng., Box 61, Tulsa 2, Okla.

Va., Quantico—E. C. Ernst, Electric Contractors, 1622 14 St. N.W., Wash., D. C., Contract Awarded, $634,000, overhaul and rehabilitation electrical distr. svs., Marine Corps School, NOY 27045, Spec. 29007. Potomac River Naval Command, Naval Gun Factory, Wash., 20, D. C. Bids June 25, awarded June 29.

B. C., Waneta—Northern Constr. Co. and J. W. Stewart Ltd., 1304 Hornby St., Vancouver, B. C. Contract Awarded, $30,-000,000. mine power development power plant and dam on Columbia River 11 mi. from Trail. Consolidated Mining & Smelting Co. of Canada Ltd., Trail, B. C. Stone & Webster Canada Ltd., 44 King St. W., Toronto, Ont., engr. Awarded July 3.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Tex., Kingsville—Celanese Corp., Kingsville, addnl. expansion chemical plant. $3,500,000.

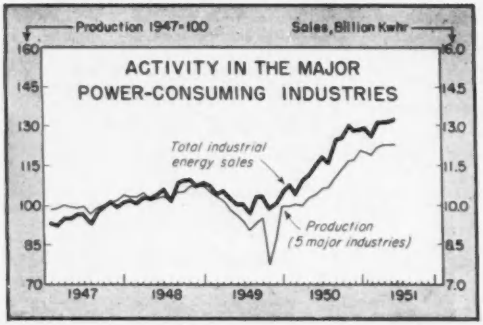
Neb., Hastings — Ninth Naval Dist., Great Lakes, Ill., building constr., imprvs. to bldgs., and other imprvs., Naval Ammunition Depot. $20,281,400.

Tex., Odessa—Gilmore Refineries, Inc., c/o Earl B. Gilmore, 612 S. Flower St., Los Angeles, Calif., Unit 1, 25,000 bbl. refinery, $20,000,000; Proj. 2, 25,000 bbl. refinery, $20,000,000.

Wash., Longview—Reynolds Metals Co., Longview, increasing size of pots on three pot lines at aluminum plant, $12,000,000.

W. Va., Parkersburg—Eastern Rayon Mills, c/o Oscar Kohorn & Co., archts., 501 5 Ave., New York, N. Y., 2 concrete mfg. bldgs., one 4 story, other 1 story. $9,000,000.

Electrical Business Outlook



INDUSTRIAL PRODUCTION has leveled off and may dip in the next two or three months. But no big drop can be expected

Peace Without a Letdown?

Business reactions to the Korean truce talks are becoming clearer. There's no panic—no sharp cutbacks on production schedules. The attitude is "wait and see."

A McGraw-Hill spot check of big industrial companies shows that most are going right ahead with their expansion programs—unless the government calls the whole defense show off, and Mobilizer Wilson made it clear last week—as did President Truman—that they haven't any intention of letting that happen.

There's also a surprising amount of confidence in wholesale and retail trade circles, where the spring business dip has been felt most. Price cutting hasn't spread far, and consumers are buying steadily. So there's been no big rush to dump inventory.

All this could change in the next few weeks. It depends on whether we get nothing more than an armed truce in Korea, or whether it looks like general peace in the Far East. In the latter case, Congress might disregard Truman's warnings and slash the defense program.

If Peace Comes Inventories Will Be Cut

If peace looks definite, many companies will cut inventories drastically. And that means cutting new orders and slowing up production in many lines of manufacturing. Inventories generally are very high in non-defense lines. People have been figuring on shortages later on. But they'll feel overstocked if the shortages don't materialize.

How much would business slide? In the next two or three months we might have a sharp production dip in certain lines—textiles, chemicals, shoes, some building materials, home furnishings of all kinds, and perhaps paper. And, of course, output of consumer durables will be cut by government orders.

But the Federal Reserve index of total industrial production isn't likely to drop more than five points from the May level of 223. Increased output is scheduled for defense and machinery lines. These near-term schedules will be met, even if orders for the future are cut. Also, there won't be any noticeable drop in production of basic metals and minerals.

What does all this mean to the power industry? Perhaps a slightly greater than seasonal letdown in industrial demand for power over the summer. But it won't be an indication that the trend of demand has really turned—just that many companies are extending their vacation-time lull in production until they see what happens to defense spending.

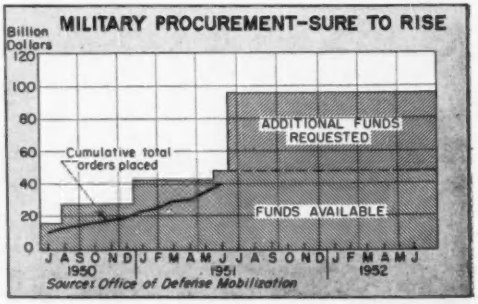
But Defense Spending Will Keep Rising

Actually defense spending will continue rising well into 1952, even if Congress cuts new appropriations tomorrow. The reason shows up on the chart below—taken from Wilson's latest report. Enough funds are already available and obligated to keep military procurement moving up, no matter how the new appropriations are slashed.

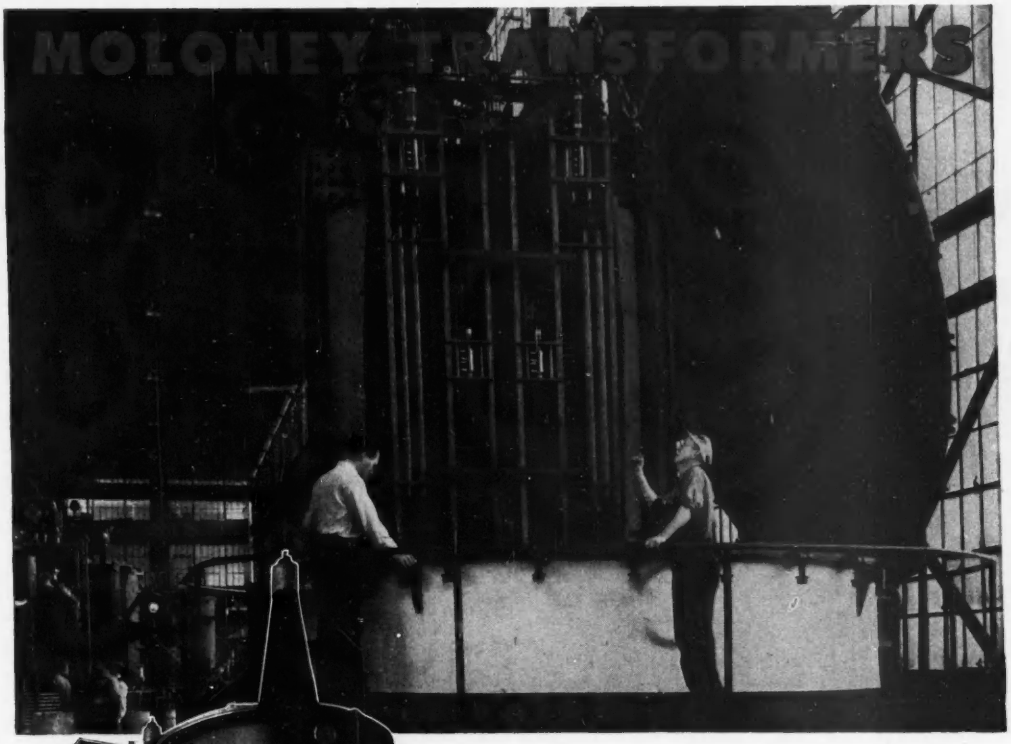
The same considerations apply to business spending on new plants and equipment. Defense plants already started are going to be completed, and it will take until next year in many cases—ditto for new steel, chemical, and other defense-supporting plants. Most companies checked by McGraw-Hill had big projects carrying over into 1952.

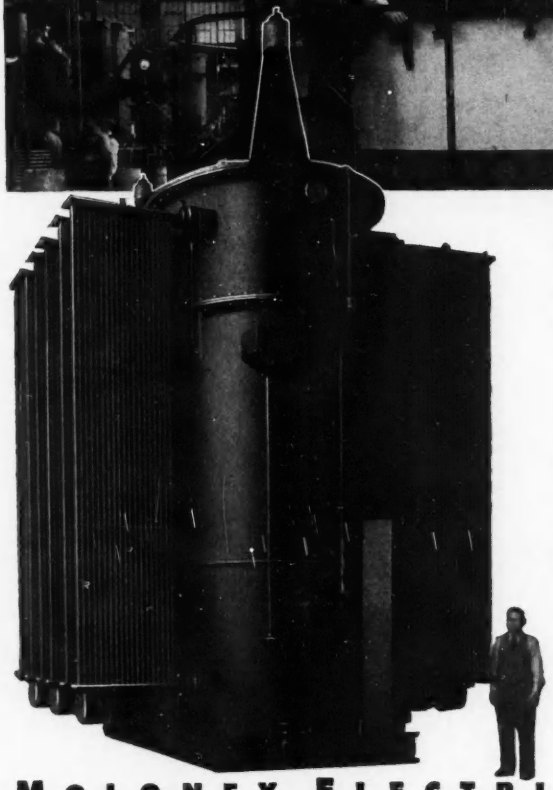
All this means plenty of employment, high payrolls, and high consumer spending. It means good business and strong demand for power—as well as electrical apparatus and appliances, where available, through the first part of 1952. Any letdown caused by the Korean truce talks will be short-lived.

But there's not likely to be as much inflation as everyone feared a short time ago. Certainly the second year after Korea won't see a wild rise in prices like the first. It's clear now that fair supplies of most goods will be available, and so there won't be the urgency for "scare buying" and bidding up prices.



DEFENSE SPENDING must rise well into 1952 because deliveries must be made on huge orders which already are on books





JUST ONE STEP . . . BUT *IMPORTANT*

VACUUM TREATMENT—Atmospheric moisture in insulating materials used in transformers reduces their dielectric and impulse strength. Amounts of moisture insufficient to cause breakdown on standard applied-potential and induced-potential tests may cause insulation failure under impulse conditions to which the transformer is normally subjected. Because Moloney recognizes the extreme importance of this step in production, core-and-coil units of all Moloney Transformers must be absolutely dry before they are placed in their tanks.

As illustrated above, units are placed in one of a battery of vacuum tanks. First, heat is applied by means of steam coils, evaporating some of the moisture. Then the air is removed from the tank and high vacuum maintained until test readings show the core-and-coil unit to be dry.

This is but one of the many important steps in the manufacture of Moloney Transformers. Operating records of these transformers are ample evidence of careful attention to all details of design, fabrication, and processing by an organization devoted entirely to the manufacture of but one product . . . transformers.

At left is a 28,000 KVA, single-phase power transformer, 161,000 volts primary, 13,200 volts secondary.

MOLONEY ELECTRIC COMPANY

Manufacturers of Power Transformers • Distribution Transformers • Load Ratio Control Transformers • Step Voltage Regulators • Unit Substations

SALES OFFICES IN ALL PRINCIPAL CITIES • FACTORIES AT ST. LOUIS, MO. AND TORONTO, ONT., CANADA

TAP CHANGER

Operated Above Oil Level

NOW STANDARD

ALLIS-CHALMERS
DISTRIBUTION TRANSFORMERS

THIS NEW tap changer has its operating handle and indicating dial plate extended *above the hot oil level* for convenience in changing taps. It's easy to operate, easy to read and requires no maintenance. Attractive and compact, the design is based on the sturdy construction features that have given Allis-Chalmers tap changers top performance for many years.

Bold white letters mark tap positions on a black vulcanized fiber dial plate. Cautioning area indicates the location of limiting stops.

As the molded plastic assembly is turned, the high pressure contact snaps into position with a wiping action. The contact shoe is V-shaped so that it makes a positive stop in a position bridging two studs.

You can get Allis-Chalmers *new* long handled internally operated tap changer in distribution transformers rated 100 kva and smaller single phase; 150 kva and smaller three phase. For more information contact your local Allis-Chalmers sales office or write Allis-Chalmers, Milwaukee 1, Wis.

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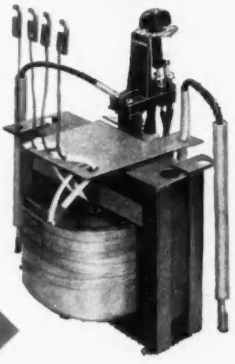

Leads are firmly crimped to tap changer studs for a lifetime connection.

ALLIS-CHALMERS A-C ALLIS-CHALMERS